WOOD WORKING digest

FEBRUARY 1952

Comments from the Nation's Capital 17

Feature Articles 49-95

Finishing Section 111

Safety Section 157

Veneer & Plywood Section 129

Complete Index 5

Products Index 230

Advertisers Index 232

A HITCHCOCK PUBLICATION

THE INDUSTRY'S *No. 1* PUBLICATION

in

- Editorial Content
- Advertising Volume
- Effective Circulation

PUBLISHED MONTHLY SINCE 1898

DRIVE STANDARD 12 GAUGE ROUND SASHPINS

AUTOMATICALLY!

The dependable, production-tested Spotpinner automatically drives—and countersinks to suit—the familiar round 12 gauge sashpin to produce quality millwork at substantially lower cost.

The new Spotpinner has a double capacity magazine contained entirely within its virtually indestructible molded frame.

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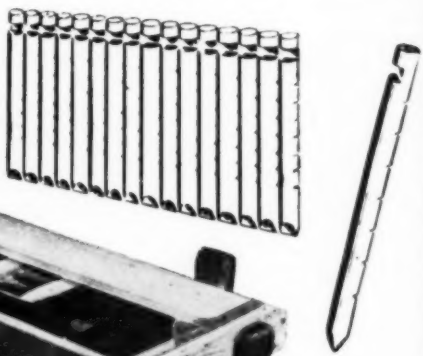

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Spotpins are made in standard 7/8", 1" and 1 1/8" sizes.

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"OLIVER" No. 299
Single Surfacer

Planes stock up to 24" x 8" – 40' a minute

- **Built-in Jointing and Grinding Rigs**
- **Variable Feed Rates with Indicating Dial**
- **Ball bearings on all rotating parts**
- **Convenient, centralized controls**
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This popular "Oliver" Single Surfacer turns out accurate, smooth work. Feeds at any rate from 18 to 40 feet a minute by the turn of a dial. Its one-piece base casting assures rigidity and lasting alignment of all working parts. Though it takes only 3 x 4 feet floor space, it weighs almost 3000 pounds. Revolving parts fully enclosed to exclude dirt and provide maximum safety. The built-in knife jointing and grinding rig is another valuable feature. Adjustments made from outside of machine. Efficient lubricating system. Modern unit system of construction.

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OLIVER MACHINERY COMPANY

Established 1890 **GRAND RAPIDS 2, MICHIGAN**

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ENDLESS BED SANDER

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SMITHVILLE, NEW JERSEY

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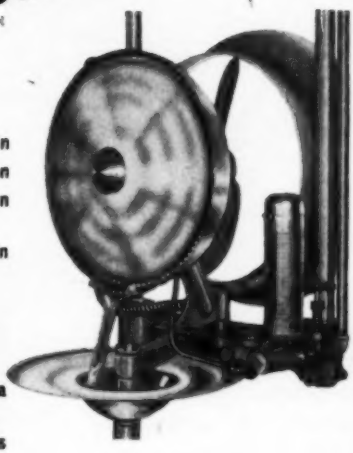

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Moisture content control, through automatic humidity control, means less warping, shrinking and checking—makes veneers behave.

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Bahnson Company
ENGINEERS AND MANUFACTURERS
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Woodworking digest

FEBRUARY, 1952—OUR FIFTY-FOURTH YEAR

Comments from the Nation's Capital 17
The Editor's Page 41
Pointed Paragraphs 43
What Happened at the Chicago Market? 49
Conservation of Species Through Proper Selection 69
Is Bending of Solid Wood Becoming a Lost Art?..... 85
By Paul Graham
What is Collapse? 95
By Harry D. Tiemann
Know Your Wood 103
Hot Spraying Finishes 111
By Thomas A. Dickinson
Veneer and Plywood (Part 17) 131
By Ned Bailey
Types of Plywood (Part 5) 139
By Thomas D. Perry
Board Materials from Sawdust and Shavings 153
Make Safety Vital for the Employee 157
Portable Power Tools Speed Production 165
Losses and Gains with Oak Wilt in '51 175
New Literature 183
Industry Notes 189
Equipment and Supplies 193
Mechanics Through the Ages 206
The Market Place 208
Woodworking Digest Buyer's Service 214
Products Index 230
Index to Advertisers 232

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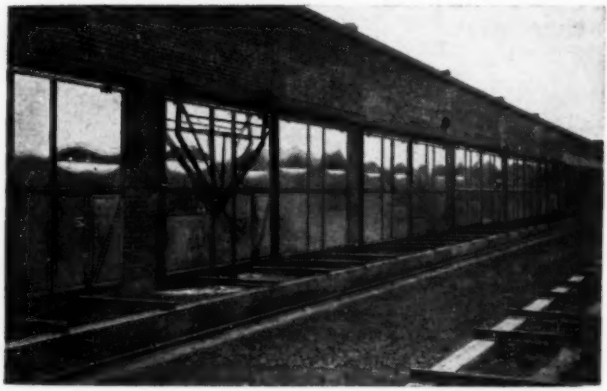


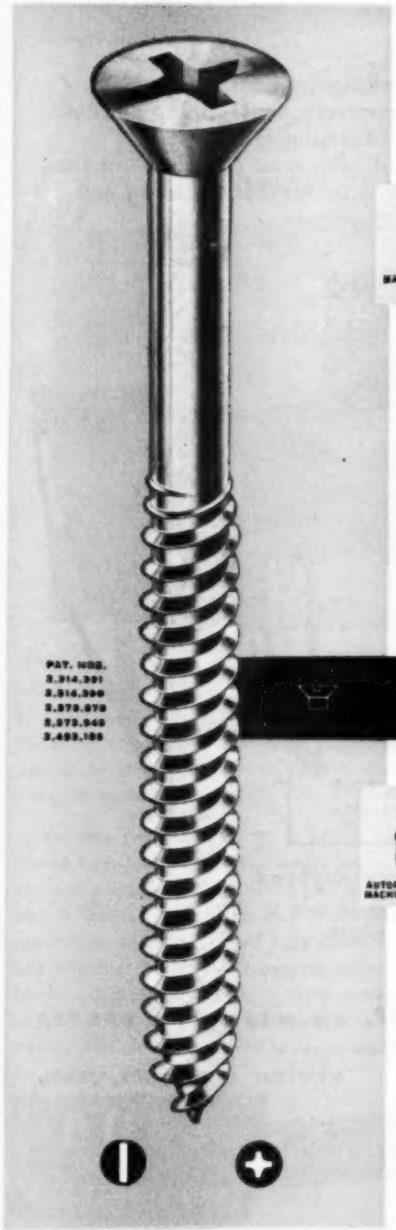
View of the Lane Company's long line of Standard Dry kilns, installed at the Company's big Altavista plant. World-famous Lane cedar chests get their start in this fine dry kiln battery.

Manufacturers of Internal Fan Kilns

Write for illustrated Standard Catalog

STANDARD DRY KILN COMPANY

798 S. HARDING STREET • INDIANAPOLIS, INDIANA



Blake & Johnson is headquarters for patented Twin-Fast® twin-thread wood screws now available with Phillips head as well as slotted round, flat and oval heads—in brass and steel, bright-finished—in all standard lengths and diameters and some special sizes; others to order.

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The complete line of Blake & Johnson fastenings includes machine screws, stove bolts, tapping screws, special headed products, nuts, rivets, chaplets, wire forms, and automatic screw machine products . . . in steel, brass and other alloy metals.

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Firstest with the Mostest

Anticipating the needs of the woodworking industry, Raybond was the *first* one-man high-frequency panel gluing machine. Raybond, during *4* years of use and field testing, has been constantly improved. Raybond—the *most* complete one-man unit includes high-frequency generator, glue spreader, loading and unloading tables, plus installation.

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Production of one man from 3000 to 8000 surface feet per day depending upon machine size and stock lay-up.

Why speculate—buy the time-tested, proven Raybond

Raybond normally pays for itself *out of savings* in one to three years — In some instances six months — write today for brochure.

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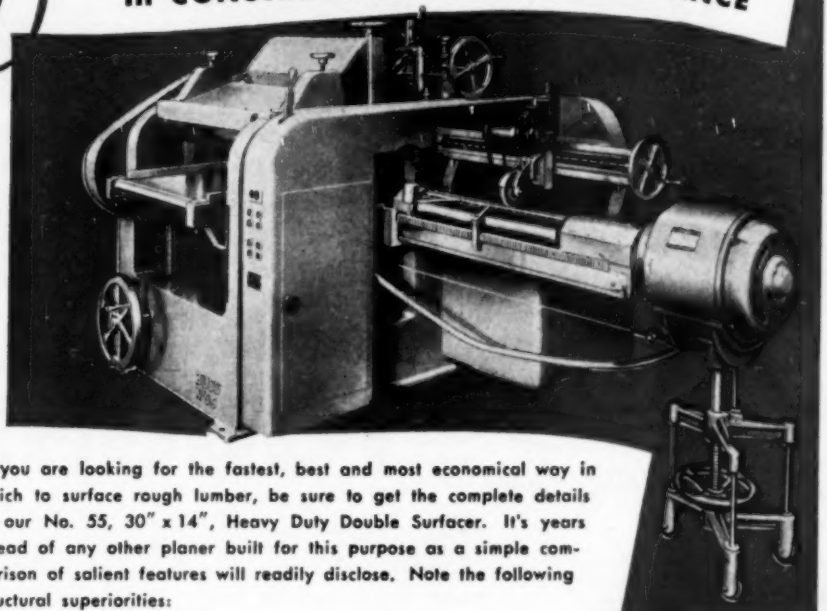
NEWTON HIGHLANDS, MASS.

Electronic Veneer on Frame Press
Electronic Edge Banding Press
Electronic Post Gluing Press.
Portable Wood-Bonding Gun
Special Assembly Jigs and Presses

for DOUBLE SURFACING ROUGH LUMBER the BUSS No. 55 is YEARS AHEAD in CONSTRUCTION and PERFORMANCE



If you are looking for the fastest, best and most economical way in which to surface rough lumber, be sure to get the complete details of our No. 55, 30" x 14", Heavy Duty Double Surfacer. It's years ahead of any other planer built for this purpose as a simple comparison of salient features will readily disclose. Note the following structural superiorities:

1. Variable feed — from 30 to 175 ft. per minute. 2. Chromium plated beds and bars — for longer wear. 3 Heavy built-in grinders and jointers. 4. Anti-friction ball and roller bearings throughout. 5. Sectional feed roll and chipbreaker. 6. Large diameter cutterheads with high-speed TUNGSTEN knives for longer wear and smoother finish. 7. Completely motorized with push-button control. 8. Shearing Bar to prevent damage from loose knots. 9. ONE-SHOT lubrication for smooth running and insurance against neglected parts. Write for complete description. Ask for bulletin 55.

FLOORING MILLS and KINDRED PLANTS

No. 55 is also available in 20-inch width with speed stepped up to 275 ft. per minute. This model has proved itself a "bear-cat" for Flooring Mills and similar operations. Let us tell you about it.

BUSS
SINCE 1862
MACHINE WORKS

PLANERS EXCLUSIVELY

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Stay Sharp Because They're TOUGH!

ATKINS *"Silver Steel"* band saws are designed and built for rugged service! Uniform in quality, properly heat-treated, correctly set and filed—these precision-made saws assure the longest possible service at minimum maintenance expense! They are easy to file! They cut smoothly and true! In short—like *all "Silver Steel"* products—they'll save you money and serve you better.

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Hinge Butt Router, HB8A Mortises six times faster than by hand. Leaves smooth surface . . . perfect fit for round or square corner hinges.

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J38 Plane. Uses same motor as HB8A, gives fast, flawless cutting. Ingenious design blows chips entirely free from cutter and operator.

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Fastest way to fit doors

is with STANLEY Door Set Equipment

Get full information on how Stanley Door Set equipment puts production line speed and efficiency into door hanging. See your dealer or write for Folder E50 to: Stanley Electric Tools, 433 Myrtle St., New Britain, Connecticut.

Lock Mortiser, LM1. Does a complete mortising job in about 30 seconds. Easily adjusted to any size door.

STANLEY

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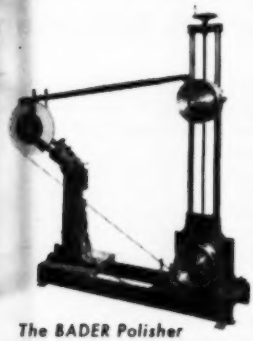
BELT SANDING *hits a new high!*



The BADER Polisher is manufactured and sold by STEPHEN BADER CO., Rockville Centre, N. Y.

BEHR-MANNING coated abrasive belts and the new BADER Polisher are combining to set new production and economy records. The versatile BADER machine makes possible the use of a wide range of diameters in contact wheels — from 1" to 16". The use of pre-shaped wheels makes contour sanding faster and easier. Smooth-cutting, flexible, long-lasting BEHR-MANNING coated abrasive belts enable you to make the most of this new production method.

See this and other new sanding methods demonstrated in your own shop or in a nearby BEHR-MANNING Methods Room.

Write today to Dept. WD-2.

BEHR-MANNING CORPORATION

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▲ SHARPENING STONES
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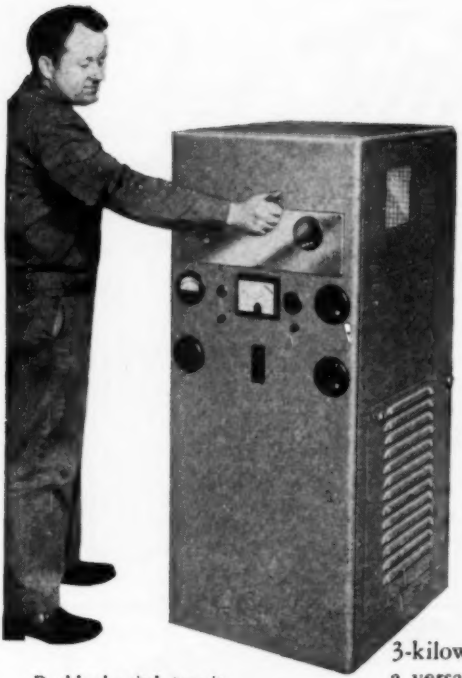


Dual-load switch permits time-saving use of two bonding set-ups. While one load is being bonded, the other can be prepared.

THERMEX Electronic Bonding Equipment for:

EDGE-BONDING OF LUMBER

MOLDING OF LAMINATED PARTS

BONDING PANELS-TO-FRAMES

FABRICATION OF ASSEMBLIES

BONDING OF PLYWOOD.

Thermex

ELECTRONIC BONDING EQUIPMENT

NEW!

compact portable unit for many bonding jobs

You'll find the new THERMEX 3-kilowatt Bonding Equipment (Model 3H) a versatile performer on a variety of small bonding operations.

It's well shielded—a new construction reduces escaping radiation to far below the legal maximum. Each unit is certified in accordance with FCC regulations.

It's dependable... installation by Thermex factory engineers assures satisfactory operation from the start. All parts accessible for easy servicing.

THERMEX users everywhere report reduced labor requirements, boosted production. A THERMEX field engineer will be glad to study your operations and make recommendations —at no obligation. Write The Girdler Corp., Thermex Division, Louisville 1, Ky.

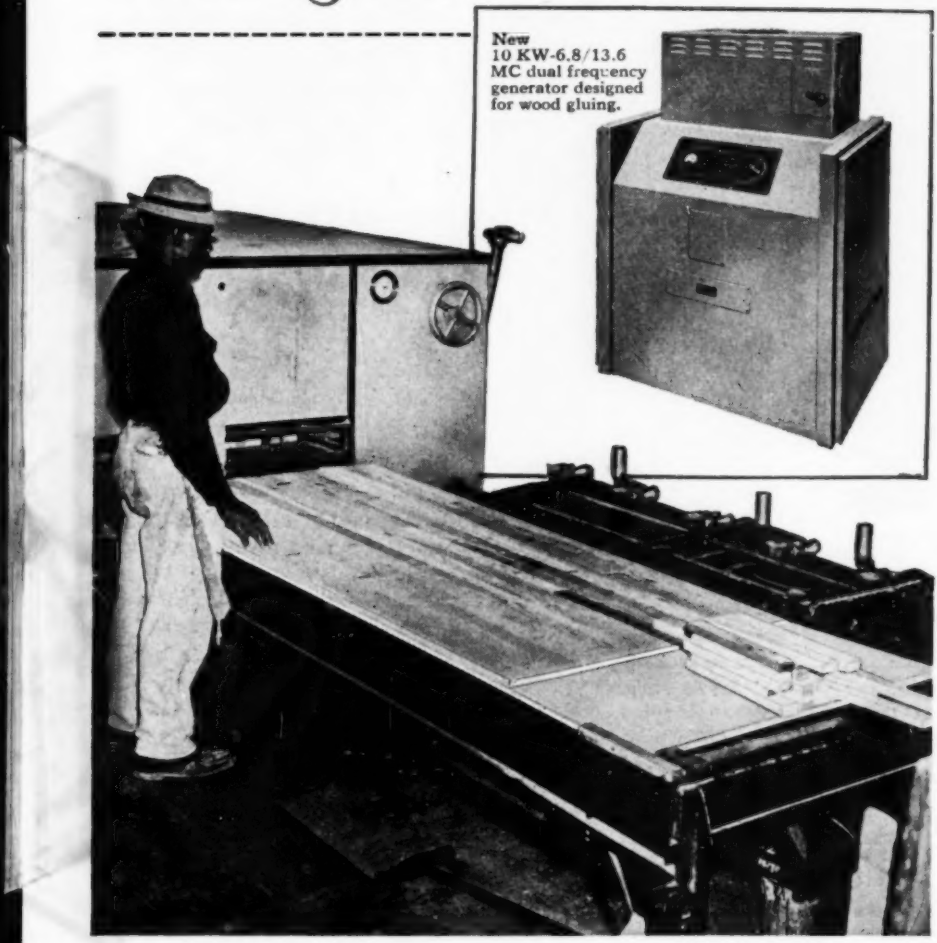
THERMEX—T. M. Reg. U. S. Pat. Off.

The **GIRDLER** Corporation

Thermex Division

YOU CAN BE SURE... IF IT'S

Westinghouse



A Westinghouse 10KW-5 MC generator and a Weldon-Flinchbaugh panel press produce phenomenal savings in costs and materials at Bradley Plywood Co.

Part-Time SAVINGS

$26,000

A YEAR!

RF gluing equipment is used in new, efficient and productive ways by Bradley Plywood Company, Savannah, Georgia. For one day a week Bradley's RF equipment glues scrap wood salvaged by them to make lumber core panels, desk-top cores and other items.

On scrap-wood gluing alone, Bradley saves $26,000 a year!

Bradley spends the other four days a week on RF gluing of core-stock panels from standard size lumber. With RF heating, production has tripled, costs have been halved.

For full-time operation, the $26,000 scrap-wood savings plus an annual saving of more than $36,000 in normal operations paid for the installation in less than three months. There have been added benefits: fewer rejects, less glue, less planing, less floor area.

Today, scarcities demand savings. For savings information, call your Westinghouse representative. Or write Westinghouse Electric Corporation, Department W-3, 2519 Wilkens Avenue, Baltimore 3, Maryland; ask for the booklet B3946B covering *"RF Heating for the Woodworking Industry."*

The Best "Tip" of the Year!

CARBIDE TIP

NEW DESIGN SAW BLADE

The world's most perfect blade for fine finishes when cross-cutting, trimming, or mitering solids, plywoods, laminates or fancy veneers. An engineering masterpiece produced by Big 4's own Exclusive Design machinery, resulting in greatly expanded quality at a greatly reduced price!

Expenses are clipped when it's Big Four Carbide tipped.

BIG 4 SAFETY SAW BLADE

The new "controlled-cut" circular saw with the famous "no-grab" feature. Lessens danger from kick-backs, increases efficiency by cutting smoother. Big 4 engineering research, production know-how and world-wide sales staff guarantee greatly expanded quality at a greatly reduced price!

For standard hand feed, planer hand feed and power feed type operations.

Big 4 produces saw blades for every purpose, from school room manual training to large industrial projects.

BIG FOUR CARBIDE TOOL COMPANY

5938 CARTHAGE AVENUE • CINCINNATI 12, OHIO

For free comprehensive booklet write to: Big Four Carbide Tool Co., 5938 Carthage Avenue, Cincinnati 12, Ohio.

Comments from THE NATION'S CAPITAL

By Arnold Kruckman
Washington Correspondent

Harold E. Schwartz, special technical and economic mission, care of American Legation, Saigon, Vietnam, wants catalogs of woodworking machinery.

An Italian firm seeks a license from an American firm to make skis. A Scotish firm, 100 years old, with a good reputation and well equipped woodworking shop, wants to make American quality furniture under license. Those interested should write for details to Mutual Security Administration, 806 Connecticut Ave., N.W., Washington 25, D.C.

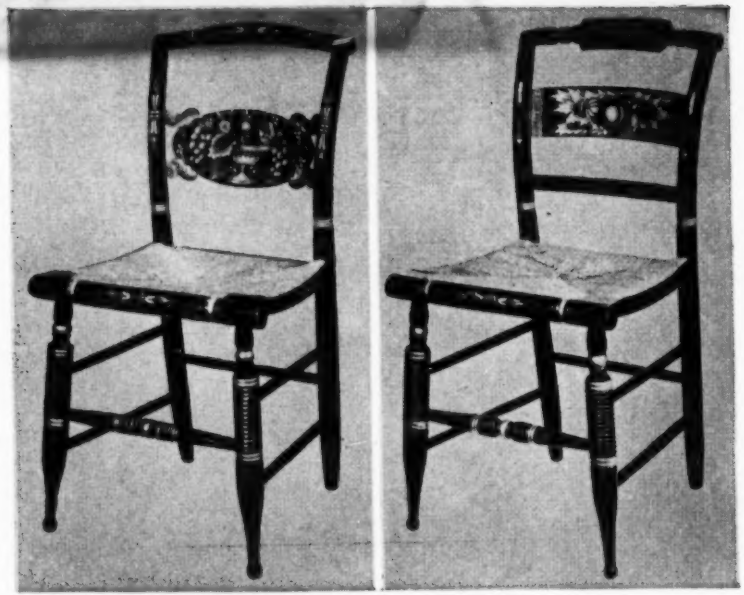
Wage Stabilization Board is on the brink of announcing that all employers of four or less are exempt from its regulations. You are no longer required to file reports with WSB as to wage increases under GWR-6 (general increases within the 10% "catchup" formula) and GWR-8 (cost of living increases). You must keep records justifying increases for the duration of the Defense Production Act and two years thereafter.

NPA reports nailed wooden box production is down about 10%. Slack cooperage slightly increased during third quarter of 1951. Tight cooperage production remained static. Stave and heading inventories in good supply.

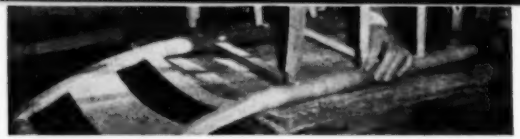
Veneer packages, hampers and basket production was considerably below capacity. Shipments of wirebound boxes and crates were down almost $3 million for the second quarter of 1951. Wirebound box industry representatives, at the second meeting with OPS officials, proposed tailored regulations of dollars and cents ceilings for standard items, and formula regulations for wirebound boxes made for industrial users. The pricing formula would include material costs, conversion costs, margin and delivery costs, with the base period from January 25 to February 24, 1951. They reported increased costs for logs and labor were major considerations.

Manufacturers are forced to go further afield and pay higher freight costs, and to pay wage increases. They suggested

WOOD-LOK is applied to dowel holes in back of Hitchcock chair using oil can applicator. WOOD-LOK is ready for use — nothing has to be added, soaked, or heated. It has a storage and working life of months — not 3 to 4 hours. It permits continuous production — with no time lost to mix fresh glue or replace constantly hardening glue. Investment and operating costs for heated glue pots are eliminated. No chance of error in mixing.



WOOD-LOK® selected to assemble famous Hitchcock Chairs



WOOD-LOK makes possible 5 to 10 minutes of open assembly time, enough to permit operator to glue up six joints of this Hitchcock chair at one time. WOOD-LOK is also uniquely suited for high-speed doweling with single or multiple air gun applicators. Its stability is not affected by the presence of mechanical operation or contact with metal or rubber parts.

WOOD-LOK has a setting speed comparable with hot animal glue but without the danger of "chilled" joints. Chair can be handled immediately after clamping without special devices. Sufficient tack is developed in the short pressure application to assure alignment of the chair after removal from the pressure jig. Further clamping is not needed.

Hitchcock chairs, famous since 1825 for their distinctive styling and matchless quality, are back after an absence of almost 125 years. Since the restoration of the Hitchcock Chair Company at Riverton, Connecticut, four years ago, the company has added to Lambert Hitchcock's original quality-production techniques, one important improvement — *better glue*. Hitchcock chairs are now made with National's cold-run, liquid glue — WOOD-LOK.

WOOD-LOK helps Hitchcock maintain its high standards of quality, and speeds assembly — as the photos at the left show. For full information on WOOD-LOK, write National Adhesives, 270 Madison Avenue, N. Y. 16, N. Y.

National
ADHESIVES

Look on the label

for the mark of

Serviced Glues!

Expert Gluing Service is a tremendous advantage enjoyed by users of Perkins Glues. They know that if trouble develops—*for any reason*—prompt and efficient help will come from the Perkins representative in their locality and, when necessary, from the Perkins Laboratory Staff. If your plant is not one of those getting the best in Service along with top quality Glues it will pay you well to contact Perkins today.

Liquid Urea Resins
HIGH OR LOW SOLIDS • BULK OR DRUM SHIPMENTS

Powdered Urea Resins
CATALYST CONTAINED OR CATALYST TO BE ADDED TYPES

Resorcinols and Phenolics
FOR WORK REQUIRING COMPLETELY DURABLE GLUE LINES

Casein and Vegetable Glues
FOR VENEERING, LAMINATION, AND ASSEMBLY GLUING

Plus

PERKINS COROX LIQUID READY-FOR-USE ASSEMBLY GLUE
GLUING EQUIPMENT, SIZING COMPOUNDS, WOOD FILLERS

PERKINS GLUE COMPANY

ESTABLISHED 1899

LANSDALE, PA. **KITCHENER, ONT.**

that resellers be covered by the regulation for resellers of lumber and other wood products. Used boxes and barrels to package agricultural and industrial commodities come under CCPR, interpretation 46.

John B. Veach, new president of the National Lumber Manufacturers Association, declares that plenty of timber is available for all needs.

John M. Camp, Franklin, Virginia is the new director of the Lumber and Wood Products Division, NPA, succeeding C. Arthur Bruce who returned to his job of executive vice president, E. L. Bruce Co., Memphis, Tenn.

Lawrence W. Strattner, administrative vice president, West Virginia Pulp and Paper Co., is the new deputy assistant administrator of the Chemical, Rubber and Forest Products Bureau of NPA.

TVA reports, with two nurseries producing over 20 million seedlings a year, it is progressing in production of a strain of super pines in the south.

U. S. Department of Labor states most defense-related industries, including aircraft and woodworking activities, continue to add workers to their payroll.

The Labor Department announced that it has launched apprentice training to make carpenters, millmen and cabinet makers among the Hopis and Navajos in Arizona, Colorado, Utah and New Mexico. This will be done under the direction of the Bureau of Indian Affairs and AFL. The ten-year program will be financed out of the $88 million supplied by Congress to develop the mineral resources on the reservation.

The federal minimum wage scale is to be pushed from 75¢ to $1.25 an hour. Various parts of the woodworking industry are girding for a battle.

The President, by executive order on Dec. 3, 1951, established a Fair Employment Practices Commission.

Federal Trade Commission dismissed without prejudice a complaint charging National Retail Furniture Association, its officers and member trade associations, with conspiracy to suppress competition and restrain trade.

Shipments of lumber and forest products will decrease 5½% the first quarter of 1952, according to ICC estimates. Carloadings in 1951 were 628,839; in 1952 they are estimated at 594,029.

Assistant Defense Mobilizer Foley announced 800,000 housing units can be started in 1952 with strict conservation of wood and other materials.

A number of essential activities defining critical occupations were announced jointly by the Labor Department and the Commerce Department, January 16. These bring more woodworking activities into the classifications eligible for exemption from military services, and for deferrment from calls to active duty as reservists and national guardsmen as well as draftees under the Selective Service System.

Production of wood products has been defined to include wooden parts of aircraft, ships and other military equipment, also shoe last blocks, shoe lasts and wood shipping containers.

Forestry and forest industries include forest management, logging, sawmills, planing mills, softwood plywood production and gathering of gums and barks for manufacturers of naval stores or medicinal preparations.

Production of aircraft has been defined to include both military and commercial units and their component parts.

Production of ships and boats includes maintenance and repair on all component parts.

All maintenance and repair services for activities identified on this list are included as essential activities and critical occupations.

State department announces a gift of $6 million to Israel, the first of a series to be made.

Ten thousand wooden huts will replace canvas tents in immigrant villages of Palestine. Total of 18,000 prefabricated wood huts were recently purchased by Israel in Austria, Sweden, Germany and France. One thousand large prefabricated wood structures were purchased in Sweden to be used as schools, nurseries, kindergartens, shops and other institutions. Twelve hundred more were bought in Finland.

Latest Labor Statistics Report shows that housefurnishings prices increased steadily in the first part of 1951, leveled off and declined during the last six months, but increased 3.4% for the year.

Service trades under CPR-34, Amendment 2, OPS, now have authority to secure price relief by applying directly to OPS field offices. Washington OPS handles those cases which concern business carried on in more than one OPS region. Under the amended order it is no longer necessary to show "substantial financial hardship" to secure relief. It is necessary only to show present ceiling prices "impair your normal pre-Korean earnings" so that "effective operation of your service business is threatened."

OPS will take into account, among other things: increases and decreases in costs since Korea; earning of the business; changes in sales volumne; nature and size of business; and whether the records which support the showing of impairment of earnings are reasonable and adequate in relation to the size of the business.

The new adjustment is believed by OPS to meet the basic requirements of the Capehart Amendment. OPS feels cost accounting problems peculiar to service business impose "an insuperable difficulty."

ESA Administrator Putnam told the Joint Congressional Committee on Economic Report that controls may be lifted, in part, within a year or a year and a half.

Until March 31, 1952, saw logs produced and used in Alaska are exempt from price controls.

Break that Strangle-Hold on your Wood Gluing Production!

Investigate...

Thermatron

HIGH FREQUENCY GENERATORS AND EQUIPMENT

Seen in the jig is an entire cabinet assembly to be glue-set electronically by THERMATRON in only 30 seconds. The bond is stronger than the wood itself by actual test! Hidden in the background is the 3 KW generator which masterminds this job.

THE MODERN MIRACLE of dielectric wood bonding is fast making the "glue and clamp" method obsolete. THERMATRON is a pioneer in dielectric heating equipment . . . can show you how to shave production time to seconds, save on labor, reduce floor space and expensive rejects . . . yet produce lasting bonds stronger than the wood itself.

THERMATRON supplies the complete installation, both generators and necessary jigs, under one contract and one responsibility. Often the immediate savings in production effected by THERMATRON equipment more than offset the initial installation cost.

Write us today for complete details without obligation . . . and ask for our instructive bulletin No. WD-11.

HIGH FREQUENCY GENERATORS AND EQUIPMENT FOR ELECTRONIC GLUE DRYING • BENDING • EDGE GLUING • VENEER BONDING

Standard stock generators available from 500 Watt to 20 KW output, operating on 110 or 220 volt lines. Larger size generators up to 100 KW can be supplied for larger requirements.

*T. M. Reg. U. S. Pat. Off.

Thermatron division

RADIO RECEPTOR COMPANY, INC.

Since 1922 in Radio and Electronics

Sales Dept.: 251 W. 19th St., New York 11, N. Y. • Factory: 84 N. 9th St., Brooklyn 11, N. Y.

Over $500,000 worth of American oak staves for wine casks are wanted by the National Wine Syndicate of Spain to be paid for by the Mutual Security Agency of the U. S. government. Suppliers should address Sindicato Provincial de la Vid, Avenida de Jose Antonio, No. 69, Madrid, Spain. Spanish wine producers have bought oak and chestnut staves in the U. S. for over 100 years.

Spare parts for emergency needs of civil air carriers will be made available by the Air Force through a procedure set up by the Office of Aviation Defense Requirements of the Civil Aeronautics Administration. Air Force buys the spare parts. Backlog of orders of complete aircraft and aircraft propellers, September 30, 1951, amounted to $10,468,000 according to census and CAA. This major consumer of laminated woods and other wood products shows an increase in backlog in three months of $9,275,000 and 119% over September, 1950.

OPS rules (Supplemental Regulation 87, GCPR), resellers of lumber and allied wood products may determine their price ceilings by applying customary markups. This covers veneer, plywood, millwork, logs, lumber, lath, doors, windows and sash, screens, blinds, shutters, trim, molding, cupboards, mantles and other allied wood products.

Flat veneer products are now priced under CPR-95 covering turned, shaped or other allied wood products. This includes wooden popsickle sticks, ice cream bar sticks, flat and curved spoons and forks, tongue depressors and applicators, meat skewers, candy sticks, mustard paddles and similar articles. Production by eleven firms estimated to total approximately $6 million annually.

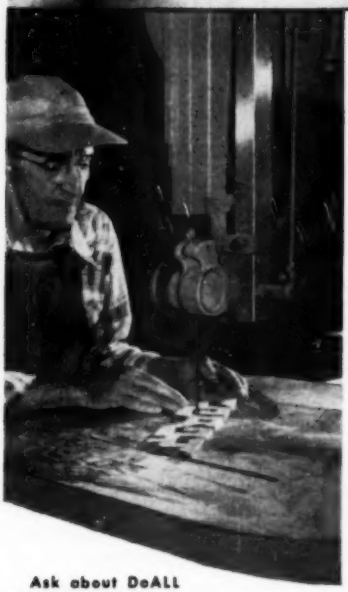
Bernhard H. Topkis, Miscellaneous Wood Products Section, Food Products Division, OPS, Room 1219, Tempo S Building, Washington, D. C., telephone Sterling 4200, extension 8068, reports the tailored dollars and cents regulation to take the place of CPR-95 is not in sight.

"Custom built household furniture" defined as furniture manufactured to the specification of a specific customer, with free choice of material and style, is exempt from price control by GOR-5, Interpretation 1.

OPS tailored dollars and cents price ceilings for northwest hardwood, standard grades, green, dry, rough lumber, cut from tough white ash, beech, hard maple, yellow poplar, basswood, birch, soft elm, soft maple, chestnut, hickory, cherry and oak shortly will be issued. There will be differentials for dimensions, marking, stencilling, bundling, strapping, treating, special loading, mixed cardloads, etc.

At first meeting of Douglas Fir Door people with OPS officials they asked a regulation spelling out dollars and cents ceilings on standard grades and dimensions of doors, including house doors, cupboard doors, French and rim doors, garage doors, solid exterior and hollow core doors. Doors made of hemlock, spruce and certain other fir species are to be included. Resellers are to be covered by other regulations.

THE DoALL WOODWORKING BUTTRESS SAW BAND



Ask about DoALL Zephyr band sawing and learn its time and money saving benefits for woodworking.

SEND FOR BULLETINS

LASTS UP TO 3 TIMES LONGER THAN OTHER BLADES COSTS NO MORE!

Need Saw Blades?

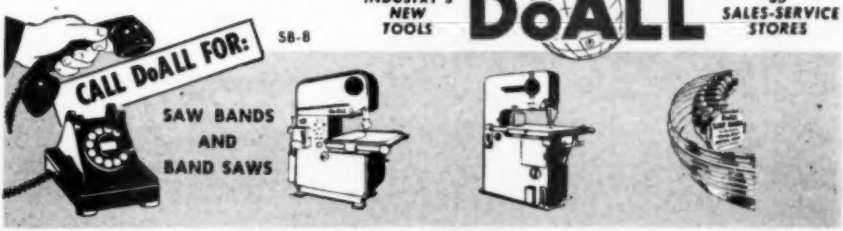
GET IMMEDIATE DELIVERY FROM DoALL

IF you are looking for a real saw band bargain to handle the majority of wood cutting jobs, ask about the DoALL Buttress Band. Costs no more than ordinary saw bands yet lasts up to *3 times longer.* You save while you use the DoALL Buttress Band because it needs no resharpening or resetting. Comparison shows this band to cut cleaner and longer than ordinary bands that have been reset and resharpened as much as 3 times. Available in 2 to 6 pitch, in 100′ coils packaged in the handy DoALL "strip-out" metal container; 500′ coils or cut and welded to fit your machine. The DoALL Buttress Band is at your local DoALL Sales-Service Store now for immediate delivery. Call DoALL today or write:

THE DoALL COMPANY

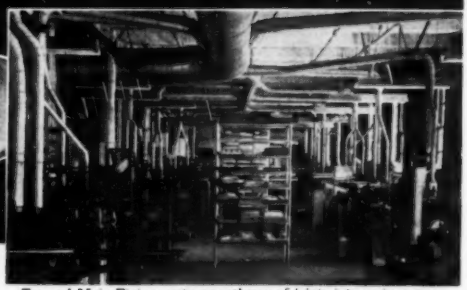
254 N. Laurel Ave., Des Plaines, Ill.

INDUSTRY'S NEW TOOLS **DoALL** 35 SALES-SERVICE STORES



Don't Buy ½ of a Dust Control System

Type C" Collector: A new design, evolved from 45 years of experience, is highly efficient and trouble-free.

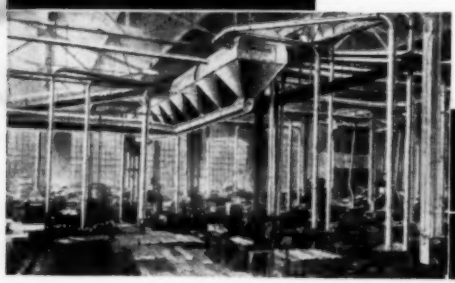


Tapered Main Piping: note smoothness of joints into main, assuring maximum efficiency, lowest possible power costs.

Without properly designed piping, the ***best collector*** in the world can't do a good job of removing refuse from the plant. The reverse is true: ***good piping*** can't make a poor collector function properly.

In a KIRK & BLUM Dust Control System, you get piping and collectors designed specifically for each other ***and*** for the job to be done. A multitude of money-saving installations illustrate the wisdom of the phrase "For all three . . . design, fabrication and installation . . . call on K & B."

Write today for catalog W, "Dust Collecting Systems for Woodworking Plants," showing further details and representative installations.



THE KIRK & BLUM MFG. CO.
3121 Forrer Street Cincinnati 9, Ohio

KIRK AND BLUM
DUST CONTROL SYSTEMS

Plenum Main Piping: permits utmost facility in rearrangement of woodworking machines, since suction is equal at any point in Plenum Main.

How to cut loading time and reduce damage on carload shipments

"An investment in knowledge pays the best interest."

—Ben Franklin's Almanac, 1757

A major cost factor in shipping any product in carload lots is *handling*, and another is damage in transit.

Today many manufacturers have learned how to get big savings on both these items. They use Acme Unit-Load Band.

It does away with costly bracing materials . . . minimizes danger of damage . . . makes unloading safer, easier, quicker.

It's easy—unskilled loading crews quickly grasp the principle of Unit-Load, learn to use Acme Unit-Load tools.

It saves real money. For example, the Electric Storage Battery Company, Philadelphia, cut handling costs 65% on unloading and storing carload shipments of lumber.

We look forward to the day when we can supply Acme Unit-Load Band to everybody who wants it, in the quantities they want. Meanwhile, why not get all the information you can about it? Ask your Acme Steel representative, or write Dept. WD-22.

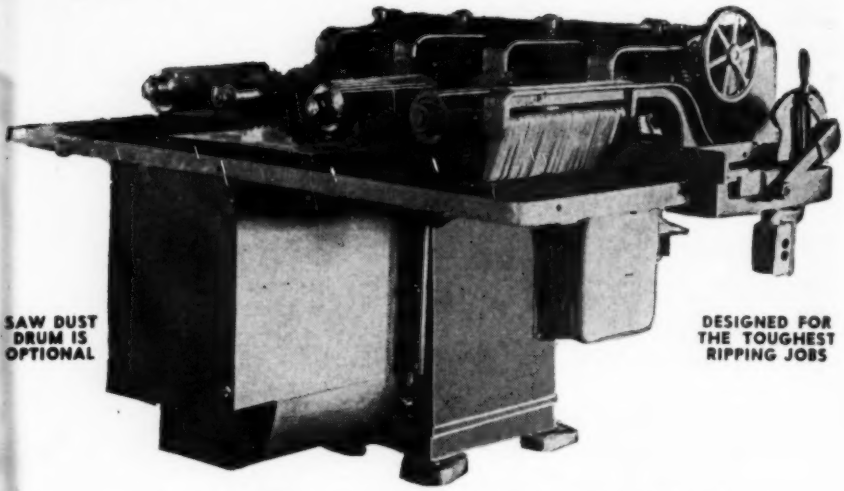
ACME STEEL

ACME STEEL PRODUCTS DIVISION
ACME STEEL COMPANY
2840 Archer Avenue, Chicago 8, Illinois

Steel Strapping — Stitching Machines and Wire — Corrugated Fasteners

A REAL HUSKY. . .

NO. 213 A MODERNIZED HOOSIER SELF FEED RIP SAW



SAW DUST DRUM IS OPTIONAL

DESIGNED FOR THE TOUGHEST RIPPING JOBS

FOR QUICK OPERATION - DEPENDABLE PERFORMANCE

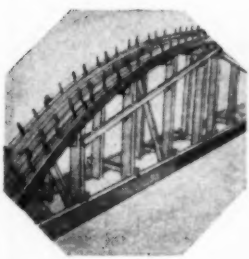
This sturdy unit is designed specifically for high speed ripping of stock longer than 24" and as a gang ripper for stock as short as 12". The No. 213 is equipped with a stationary table top having all feed works brackets bolted to the top—as is the gear reduction drive. The mandrel rides on ball bearings and is raised and lowered quickly by a hydraulic cylinder. Eight driven rolls feed the stock through the saw at high speed. A 50 H. P. motor drives this unit at full capacity. The No. 213 is a real workhorse, built to handle your toughest jobs.

Available for direct motor or V belt drive.

SINKER-DAVIS *Company*

238-250 SOUTH MISSOURI ST. DEPT. 0 INDIANAPOLIS, INDIANA

NEED A DURABLE, WATERPROOF BOND?



PENACOLITE® ADHESIVES will do the job . . . permanently!

● Penacolite Adhesives are resorcinol-base resins, the only known truly waterproof adhesives capable of curing at *room temperature*. Being neither acid nor alkaline, they are not injurious to cellulosic fibres.

Penacolite Resorcinol Adhesives cure in a few hours at room temperature or in a few minutes under accelerated heat.

Penacolite bonds are permanent. They will not deteriorate with age, are not affected by either fresh or salt water, molds, fungi, most organic solvents and acids. They'll withstand temperature variations from –40°C. to heat that would actually char wood!

So arrange with the nearest Koppers Chemical Division office now for your supply of Penacolite Adhesives . . . the wood-bonding adhesives that are as strong as the woods they join! And remember: our technical services are always at your call.

KOPPERS COMPANY, INC.

Chemical Division Dept WWD-2, Koppers Building Pittsburgh 19, Pa.

KOPPERS **PENACOLITE RESORCINOL ADHESIVES®**

SPEED

Your Production! Raise the quality of Your Planing!

No. 380-A
PLANER

THE PRECISION PLANER

There is NO SUBSTITUTE for Quality! Price alone is never a true gauge of value. Power Planers offer PREMIUM VALUES at standard prices. Eighty-three years of quality manufacturing back our claim to PRECISION WORKMANSHIP. Thousands of satisfied users are our best advertising. The Model 380 Planer is modern—rugged—compact—safe—but, most of all, it's TOPS IN PLANING.

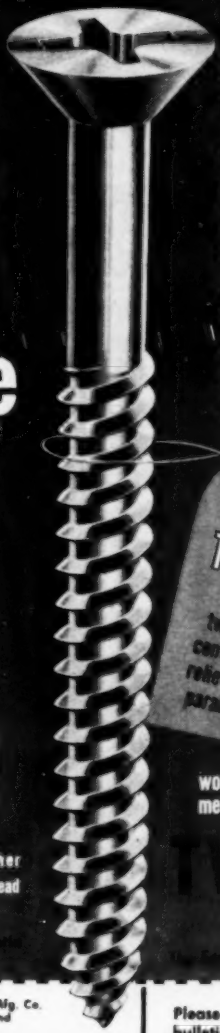
HIGHEST QUALITY SINCE 1867

Planers - Tenoners - Planers & Matchers
Resaws - Band Saws - Power Feed Rip Saws

L. POWER & CO.
2823 Oakford St.
Philadelphia, Pa.
Manufacturers of POWER Machinery Since 1867

The Double Thread Cuts the Time in Half!

Can be furnished with either Slotted or Phillips recessed head



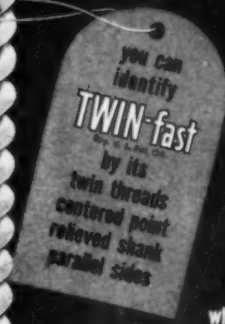
Save assembly time . . . . . get better fastenings with the TWIN-fast Screw's four exclusive advantages

1. Twin thread doubles the pitch . . . drives the screw twice as far for each turn of the driver.

2. Centered point helps make fast, straight start—no wobbling of screw, no displacement of parts.

3. Relieved shank eliminates "wedge action" and splitting—makes stronger fastening.

4. Parallel sides (no taper except at point) gives greater contact—often allows fewer or smaller screws.



save TIME
save DRILLING
save SCREWS
save REJECTS

when assembling wood to wood, plastic to wood or metal to wood

TWIN-fast

American Screw Company
Willimantic, Conn.

Blake & Johnson Company
Waterville 48, Conn.

Central Screw Company
Chicago, Illinois, and
Keene, New Hampshire

Continental Screw Company
New Bedford, Mass.

National Screw & Mfg. Co.
Cleveland, Ohio, and
Los Angeles, Calif.

Stronghold Pacific Corp.
Downey (Los Angeles), Calif.

Stronghold Screw Products, Inc.
Chicago, Ill.

Southington Hardware Mfg. Co.
Southington, Conn.

Townsend Company
Brighton, Penna.

Please send copy of the new TWIN-fast bulletin.

Name .....

Firm .....

Address .....

City ..... Zone ..... State .....

BUILT BY *Tannewitz*

SAWING MACHINERY *Specialists* FOR OVER 60 YEARS

YOUR SOUNDEST ASSURANCE OF MAXIMUM VALUE IN MITRE SAW BENCHES!

MODEL XJ (stationary table) may be had with five alternative tables, to give you a machine which is virtually custom built, to provide the last degree of efficiency on your particular type of work. Below: Model XJS—with sliding left section table.

When you go shopping for a mitre saw bench keep in mind the very important fact that Tannewitz not only originated the Tilting Arbor Saw, but ever since its inception many years ago, The Tannewitz Works has constantly devoted itself to the development of both structural and functional features that would provide the very maximum of production, accuracy, convenience of operation and long-wearing, trouble-free service. Wherever you go you'll find that they are rated "tops" with the men who operate and own them.

Whether you want a relatively inexpensive mitre saw bench or the finest that has ever been devised, you'll find it in the Tannewitz line. Let us help you select the one best suited to your production requirements. Drop us a line for complete information.

The TANNEWITZ WORKS

GRAND RAPIDS, MICHIGAN

XJSW— with extended table at right

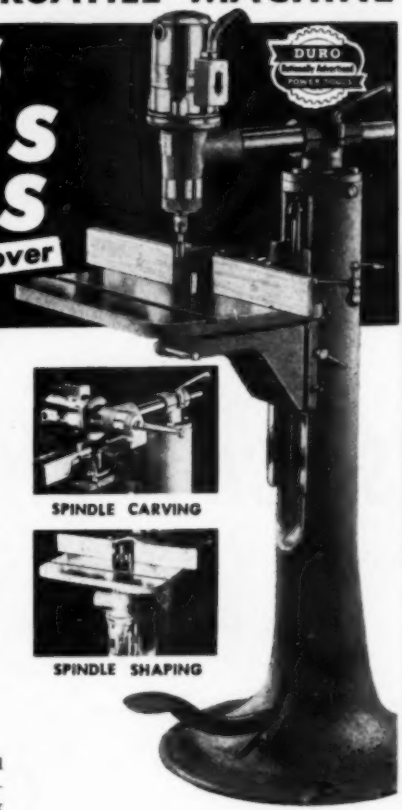
XJSW— with J-430 extended sliding table at left

XJW— with J-420 removable roll-table at left

AN AMAZINGLY VERSATILE MACHINE

IT ROUTS
IT SHAPES
IT CARVES

...with quick easy change-over



Here is a unique machine that offers THREE MACHINES IN ONE . . . at a fraction of the cost of 3 individual machines doing the same work. It will rout, shape or carve in wood, metal or plastics with quick changeover, quicker set-up. Combines ruggedness with speed (20,000 R.P.M.) power (1200 watts max. output) and solid, heavy construction that assures smooth, accurate, vibrationless performance. Has many special features including: Specially designed Universal Motor (A.C. or D.C.); New Departure Ball Bearings; table adjusts instantly to any height; chuck is part of spindle and holds adaptor and cutter close to work—preventing whip . . . plus many other exclusive features.

SPINDLE CARVING

SPINDLE SHAPING

Send for Catalog
giving full specifications and prices on the DURO Router-Shaper-Carver and other DURO quality machines including drill presses, circular saws, band saws, lathes, sanders, etc.

There is a precision engineered DURO Power Tool for *Every* job priced to fit every budget!

DURO
METAL PRODUCTS COMPANY
2678 N. KILDARE AVENUE
CHICAGO 39, ILL.

Makers of Nationally Advertised Duro-Chrome Hand Tools

Duro Metal Products Co.
2678 N. Kildare Ave., Chicago 39, Ill.

Gentlemen:

Please send me full details on the Duro Router-Shaper-Carver—also latest catalog on your complete line of power tools.

Name .....

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City ..... State .....

SPECIFY VICTORY SAWS FOR LONG SERVICE

EXPERT REPAIR SERVICE
Repairing and Resharpening Carbide Tipped Saws and Tools

Carbide Tipped "VICTORY" Saws are setting new records for continuous cutting on many difficult jobs.

Scores of plants now using "VICTORY" Saws are obtaining 40 to 100 times greater production between sharpenings . . . eliminating stoppages to change set-ups or check finishes . . . and reducing sharpening costs by more than 75 per cent.

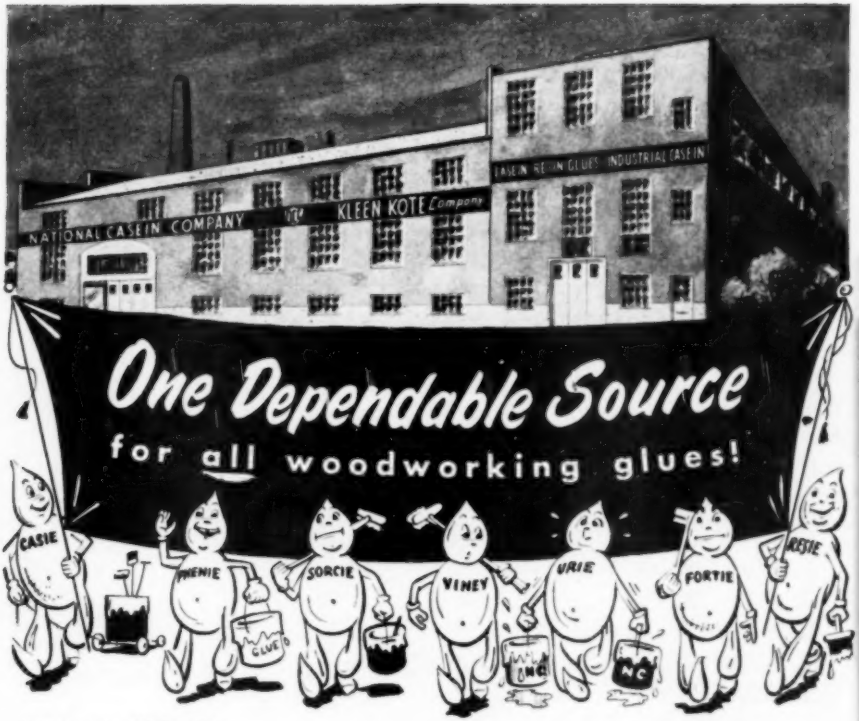
Increase your production and profits on your sawing operations by using "Victory" Carbide Tipped Saws on hardwoods, plywoods, plastics and laminated materials.

Write for Victory Saw Bulletin

VICTORY CARBIDE SAW & TOOL CO.

3854 N. ASHLAND AVENUE • CHICAGO 13, ILLINOIS

WEST COAST REPR: H. J. KOMOROUS, 1881 SUNNYVALE AVE., WALNUT CREEK, CALIF.
KENTUCKY AND INDIANA REPR: R. A. PALFREEMAN, 3652 FINCASTLE ROAD, LOUISVILLE, KY.
SOUTHERN REPR: MEMPHIS MACHINERY & SUPPLY CO., 205 S. FRONT ST., MEMPHIS 1, TENN.



Here's the Right Glue for These Important Glue Jobs:

- ★ For exterior plywood, National's P-100 Phenol glue.
- ★ For interior plywoods, ‡750, ‡600 liquid urea or DR powdered resin.
- ★ For machine edge gluing, ‡750 liquid resin, with selected catalyst. Hand work: a wide variety of casein glues or DR powdered resin glue. Also National's ‡5000 for fast setting.
- ★ For decorative plastics: ‡8846, ‡9, or ‡30 casein glues. Also DR powdered resin glues.
- ★ For chipboard manufacture, ‡750 and ‡600 liquid resin; P-100 phenol glue.
- ★ For glues to pass all government specifications . . . for laminating hard boards, veneer splicing, laminated rafters, etc., contact office nearest you.

ASK your NATIONAL CASEIN man about Casie's and Resie's brothers and sisters — "Phenie" — that's phenol glues for exterior plywood; "Sorcie" — our resorcinol glue for waterproof weatherproof bonds at room temperatures; "Viney," a vinyl formula for assembly work; "Urie" — urea glue for furniture and cabinet work; and "Fortie" — a dependable glue for gap filling.

If you aren't satisfied with the performance of adhesives you're now using, tell us about your glue job and we'll recommend a glue to do it — RIGHT!

National Casein

601 W. 80th St., Chicago 20, Ill. Broad and Fulton Sts. Riverton, N. J.

Talk to the men who use them:

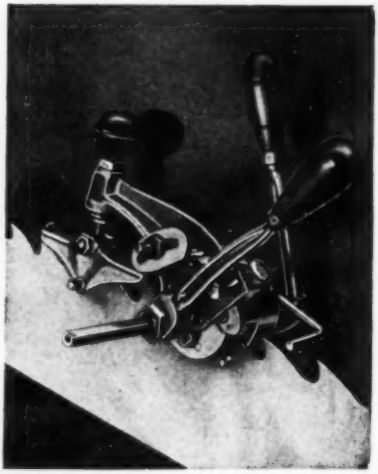
No. 36 BAND SAW SWAGE
No. 10 BAND SWAGE SHAPER

When you talk to men who use these two great tools, you'll find unusual enthusiasm. Most often, expert saw fitters praise these Hanchett characteristics:

1. Unusual ease of adjustment
2. Natural "feel" and balance
3. Sensitive, precise action
4. Wide range of adjustment
5. Simplicity — with rugged strength

Hanchett **MATCHED EQUIPMENT** for the Saw Mill and Lumber Industries leads the field in outstanding quality and performance. For full details, write for Bulletin **WW-22.**

No. 10 Band Swage Shaper



No. 36 Long Die Band Saw Swage

COVEL SAW SHARPENERS — HANCHETT KNIFE GRINDERS

FAMOUS

RED ANCHOR

GRINDING WHEELS
SEGMENTS - DRESSERS
CUTTERS - COMPOUND

Hanchett Manufacturing Co.

World's Largest Manufacturers of Saw Sharpening & Knife Grinding Machinery

Main Office — BIG RAPIDS, MICHIGAN
West Coast — PORTLAND, OREGON

STRAIGHT-LINE ACTION LEAVES NO MARKS

21 SQUARE INCHES OF SANDING SURFACE

EASY ONE-HAND OPERATION

- Only Two Moving Parts — Never Needs Oiling — Uses 110-220 v. A.C.
- Easy to Use — No Bearing Down — Continuous Use Doesn't Tire Operator — Change Paper in 10 Seconds.
- Weight Less than 5 lbs. — Over-all Size, 3⅛" wide x 4½" x 7"
- An Excellent Polisher — Sheepskin Pad Furnished
- Dust-Proof — Fool-Proof — Fully Guaranteed

For the first time in the industrial field here is a **straight-line action,** fast cutting **electric** sander at a **remarkably low price.** Model 2000 is an extremely fine finish sander that leaves no marks, swirls or cross-grain scratches. Its rugged construction, trouble-free design and easy one-hand operation—plus low initial purchase and operating cost—warrant your careful investigation. Order from your supplier or write us for details.

DREMEL MANUFACTURING CO., 2426 18th ST., RACINE, WIS.

ELECTRIC DREMEL POWER TOOLS

EVERY SHOP NEEDS . . . EVERY SHOP CAN AFFORD THE NEW DREMEL ELECTRIC MODEL 2000 SANDER

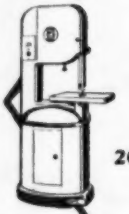
"A Favorite, the country over!"

YA

J-LINE

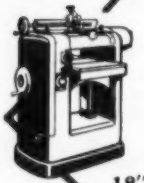
HEAVY DUTY

WOODWORKING MACHINES



J-120
20" Band Saw

J-170
12" Lathe



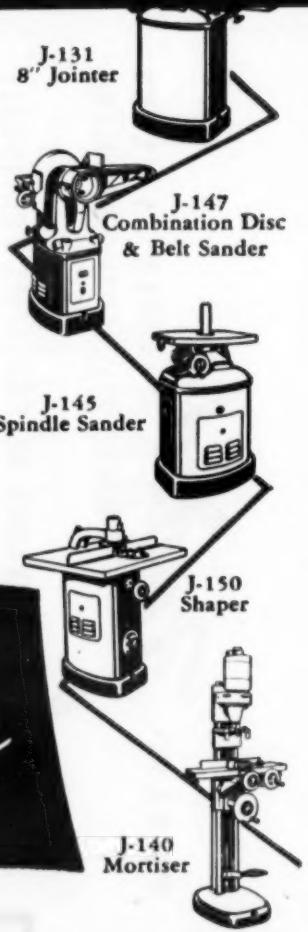
J-180
18"x6" Surfacer

ACCURATE, dependable, efficient, safe, . . . these important features make J-LINE Woodworking Machines "a favorite" in schools and light industry. J-LINE machines are easy to operate and maintain,

mation on this top quality line by Yates-American, leaders in woodworking machinery since 1883.

J-147 COMBINATION DISC AND BELT SANDER

This J-LINE Combination Disc and Belt Sander handles wood, metals, plastics, ceramics, composition, rubber, and many other materials. The Combination Sander is a variation of the J-147 Double Disc Sander, with one of the discs replaced by the Belt Sander Unit. The Belt Sander Unit can be furnished on a new machine as illustrated (left), or simply attached to a machine already in the field.



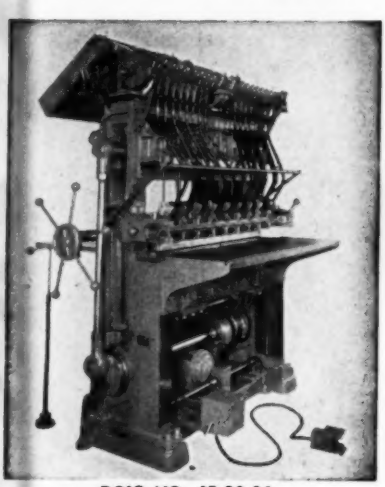
Yates-American

BELOIT, WISCONSIN

BRANCH OFFICES: CHICAGO, ILLINOIS; HIGH POINT, NORTH CAROLINA; MEMPHIS, TENNESSEE; PORTLAND, OREGON.

WE HAVE *Failed* AFTER 75 YEARS
TO SOLVE ALL NAILING PROBLEMS

But THOUSANDS OF PROBLEMS PREVIOUSLY CONSIDERED IMPOSSIBLE HAVE BEEN SOLVED BY . . . . . .



DOIG NO. 45-20-16

NEW FEATURES

A. Wheel on left allows operator to adjust back gage from operating position.

B. Solenoid trip permits operator to trip machine at any position desired.

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DOIG AUTOMATIC NAILERS

STANDARD DOIG FEATURES

1. Anti-friction bearings
2. Three separate motorized drives
3. Nail feeder to handle nails from 1 to 3 inches without additional parts required.
4. Nail feeders to give 12 separate nailing combinations.

WRITE TODAY . . . we invite your requests for full details

WILLIAM S. DOIG Inc.

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Which **WOOD** is BEST for You ?

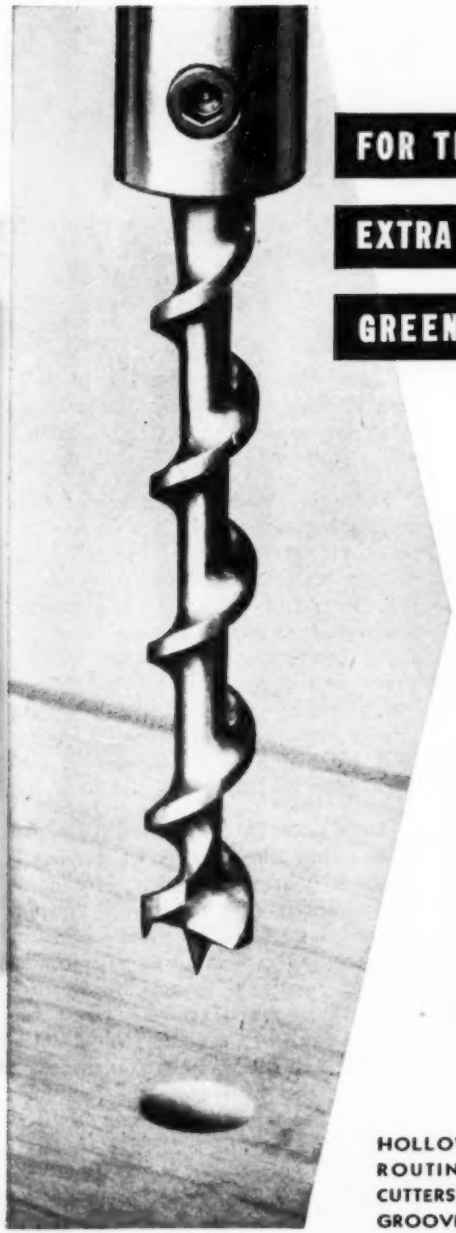
We are not so interested in whether you are making your product from gum, maple, mahogany, etc., as we are concerned with the question—is it the best wood for you? Have you investigated? Is it the best material for you? Could you make your products better for less if you adopted some new combination or species? Recent improvements in method of manufacture or treatment of lumber may have changed a species which you should perhaps now reconsider for your products.

This was brought to my attention by a plywood manufacturer in Memphis, Tennessee. He has a rather unique method of keeping his customers as steady, satisfied customers. Here is a typical example: one of his patrons insisted on a certain species of veneer being used in the plywood he bought. After the manufacturer became well acquainted, he suggested to the customer that a better plywood for his particular use was available. This plywood employed a different combination of veneers with the exception of the face veneer. Today that customer is using the recommended combination with excellent results.

There is another instance of the same thing in the case of a dimension stock manufacturer. He was filling certain orders, as requested, with a rather expensive species. This manufacturer told his customer that by using a cheaper species for certain parts and a particular stain the result would be just as good a product. The customer adopted the suggestions and was able to cut costs without sacrificing quality.

Such recommendations may come from either the supplier or the user. What is needed, however, is a constant search for information about materials that could be used in your product. The lumber, plywood, veneer, pressed wood, hardboard and other manufacturers who are advertising in WOOD WORKING DIGEST will gladly help you discover what is the best material for you. Do not hesitate to ask them or us.

Ned Bailey
Editor-in Chief



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EXTRA STURDY, SOLID-CENTER

GREENLEE MACHINE BITS

On these boring jobs where you need an unusually sturdy tool you'll find the GREENLEE Solid-Center Machine Bit an outstanding performer Its husky stem, or solid center, is a round section continuing from point to shank and increases in size toward shank . . . allowing proper clearance, yet a heavier body where strain occurs. Its accurate cutting edges are of extension-lip pattern with two cutters. Write for facts. Greenlee Tool Co., 2132 Herbert Avenue, Rockford, Illinois.

TOOLS FOR CRAFTSMEN

GREENLEE

HOLLOW CHISELS • MACHINE BITS • DRILLS
ROUTING BITS • MULTI-SPUR BITS • PLUG
CUTTERS • COUNTERSINKS • MAKERS OF TECO
GROOVING TOOLS FOR TIMBER CONSTRUCTION

Pointed PARAGRAPHS

At a recent meeting of wood products manufacturers an architect who was a guest speaker suggested the following as a New Year's resolution: "That we use all of our building materials as economically as possible; that we revise our concepts of acceptability by viewing the end product rather than the individual element; that labor be sufficiently interested in securing its own economic status by doing a good day's work for a reasonable wage; that employers and employee alike recognize their partnership in their efforts so that they can serve the public and thereby serve their own ends; and that all of us remember that the depression of one of the groups in our society ultimately means depression for all."

Although advertising rates have been forced up by economic conditions beyond the control of the medium involved, advertising particularly in business papers is your high-speed, economical, effective way of conveying important messages to your customers and prospects, a mass-production method of getting the same message to thousands of interested buyers.

All advertising media have a place in the fabric of our present civilization, some more important than others. There are very practical yardsticks by which you can measure the value of one type of media over another. Regardless of the size of your advertising appropriation, whether it be large or small it is well to talk over your problem with an advertising agency. It is their business to know and they have the facilities to find out what will be best for you. The next best thing is to contact a publication like WOOD WORKING DIGEST, letting us know what you want to accomplish, etc., and we will do all we can to help you.

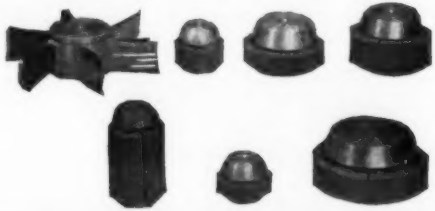
Save Up To 80% On Sandcloth Costs

*Patented

WITH THE PEARSON MODEL A SANDER*

Many plants have reported a saving of 60% to 80% on sandcloth in sanding irregular shapes with the Pearson Model A Sander. Motor shaft tilts from 0 to 90 degrees permitting head to fit beveled moulding angle perfectly. Sands one or more stepdowns at the same time eliminating several costly operations. The sanding of inside radii of circles and very flat tapered moulding is another cost saving feature of the Model A Sander. It is one of the fastest and most efficient sanders for irregular shapes on the market today.

Standard equipment includes 7 metal heads and 14 cushions made of the finest grade rubber. Length of cushions range from ¾ to 4 inches; outside diameters, 3¼ to 7 inches. With the Pearson Belt attachment, the Model A can be converted to an all purpose sander at a small additional cost.



Faster, Smoother Sanding With The Pearson Block and Edge Sander

Sands straight mouldings and round corners in one simple operation. Belt can be removed and by attaching Pearson (Patented) metal heads, this versatile sander can be used as a "straight-up" spool sander. Motor can be raised (or lowered) up to 4 inches. Equipped with 1½ H.P. motor, 4 and 6 inch drive pulleys, belt, and Gregory Butt Block complete with felt cushion shaped to fit any one mould. Length of belt is 19 feet; table 22 inches wide. Overall length is 11 feet.

WRITE FOR FULL PARTICULARS TODAY

Also manufacturers of Waterfall Belt Sanders and Grill Sanders

PEARSON SANDING MACHINE CO., INC.

HIGH POINT, N. C.

The correct method for drying various species of wood is essential if mill-converted products such as planks, boards, dimension lumber and dimension stock are to be successfully used in giving the consuming public satisfactory wood products. You can obtain accurate advice on this subject from the Forest Products Laboratory at Madison, Wisconsin. There they are constantly endeavoring to improve processes and along with chemical seasoning are exploring new drying methods. They have received much valuable information from drying wood for the government during the two world wars and the years between and up to the present time. This information is available to you in your drying problems. Use it if you need it.

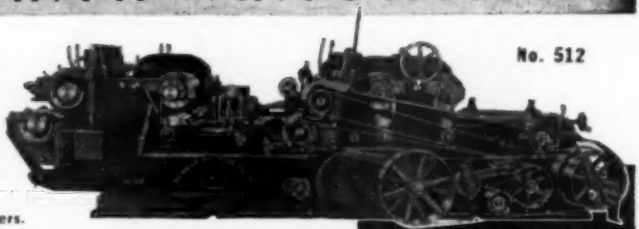
What to do with your wood waste? While commodities in great variety can be made from suitable waste wood the production of some of them may be economically unwise. The utilization of wood waste for any purpose, therefore, whether on a large scale or on a small scale should be preceeded by a thorough study of all the conditions affecting the manufacture and sale of the finished products. In this and succeeding issues of WOOD WORKING DIGEST I will give suggestions on the subject.

"So we installed automatic humidifiers throughout the plant." Manufacturers of furniture, with various temperatures in various departments do not always realize what that means to the wood they are using. Discussing the subject with a furniture manufacturer from Jamestown, New York, he had this to say. "We assumed that the lumber we put in work which had a 7% moisture content did not change much in moisture content until it was turned out as a finished product. One day we made a check of the moisture content as the lumber progressed through the plant. We found it was 5% before it was fully machined, 4% in the cabinet room and 2% in the finishing room. So then we installed automatic humidifiers throughout the plant. Now moisture is automatically added if the department is too dry."

This paragraph might well be in one of my "Know Your Wood" series—the one on cedar—appearing monthly in WOOD WORKING DIGEST. A geologist, Henry F. Herpers, tells of examining sections of trees found buried 15 to 20 feet below the ground surface in a composite of sand and gravel. The discovery was made when excavation work was being done in connection with highway construction near Paulsboro, N. J. The tree sections of southern white cedar were almost perfectly preserved, and were found in upright positions indicating that rapid deposition of sands and gravels had buried them alive more than 100,000 years ago.

NEWMAN MACHINES

Newman

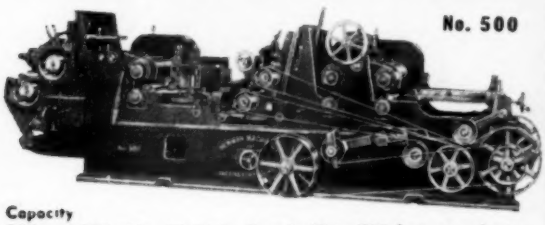


No. 512

Capacity: 16" and 24" wide, 8" thick.
Speeds up to 325 feet per minute.
8" dia. cutting circle.
Six 12" dia. feed rolls.
Single and double profilers.

BALL and ROLLER BEARING PLANERS AND MATCHERS

No. 500



Capacity
14" and 24" wide, 6" thick. Speeds 40 to 200 feet per minute. 7" cutting circle. Six alloy steel feed rolls. High carbon special alloy steel cylinders. Single or double profilers.

ORDER NOW FOR EARLY DELIVERY

ALL NEWMAN cylinders or heads are DYNETRICALLY BALANCED insuring an accurate and superbly finished product.

Ball and Roller Bearings

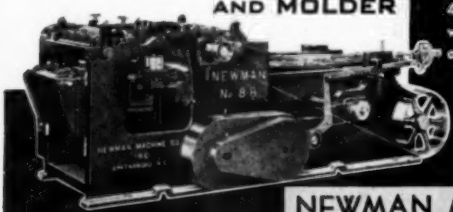
The ball bearing NEWMAN 71 (shown below) will grind all sizes of cutter heads. Table is 33" long by 9" wide with horizontal travel of 25" and is heavily ribbed to maintain accuracy over entire travel. Maximum cutter head swing is 11".

HEAD GRINDER No. 71

No. 55 AUTOMATIC PINEAPPLE FEED TABLE

The NEWMAN 55 feeds stock automatically to high speed planers and matchers up to 450 lineal feet per minute. Capacity: 30" wide, 8" thick. All adjustments and controls are centrally and conveniently located.

No. 8-B PLANER, MATCHER AND MOLDER



Unsurpassed for work in small and medium mills

The NEWMAN 8-B planes 22" wide and 8" thick, joints 4" thick and will match 14" wide. 6" diameter feed rolls. Speeds of 30, 50 and 75 feet per minute.

MAY WE SEND YOU FULL DETAILS?

NEWMAN MACHINE COMPANY, INC.
GREENSBORO, NORTH CAROLINA, U.S.A.

Where does ATLANTIC LUMBER go?

The famous Betsy Ross Spinet in walnut, manufactured by the Lester Piano Manufacturing Co., Inc.

Three generations of the Miller family have earned world-wide acclaim for the beauty of the hardwoods, fine craftsmanship and tone qualities of the pianos made by them in Lester, Pennsylvania.

Whether you make musical instruments, furniture, interior trim, or other products of hardwood, you can learn much from your Atlantic Man. He is always ready to help you and can do so, because of his vast knowledge and experience in hardwoods.

Give your hardwood problem to your Atlantic Man.

THE ATLANTIC LUMBER CO.

88 BROAD STREET, BOSTON 4, MASS.
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Headquarters FOR HARDWOODS

What Happened at the CHICAGO MARKET?

FURNITURE faces a great future! Enthusiastic buyers—24,000 strong—who thronged through the American Furniture Mart, Chicago, from January 7-18, found this to be true as never before. The furniture industry is now a 15 billion dollar industry. These figures broken down show that the average householder spends upwards of $300 a year for household furnishings. The industry with a wide variety of new products is eager to give each home real value for its money.

General Lawrence H. Whiting, president of the American Furniture Mart, says the industry is in a healthy, dynamic condition and that it should continue to command a substantial share of American consumer expenditures. He summarized the reasons why furniture has developed into big business by saying:

"Home industry has something special 'on the ball.' We have had tremendous growth in television. Then there was the accumulation of demand during the war which it took five years to satisfy. We've been affected by the country's biggest home building program and many marriages. But it's been more than that. The industry has provided a wide variety of fine new products wanted more than ever by the public for their beauty, comfort and convenience.

"We've just been through another big American Home Furnishings Market at the American Furniture Mart. It has been an extremely satisfactory market and from many standpoints perhaps one of the best in our 28-year history. Manufacturers showed a fine array of interesting new styles and designs, made for the very competitive and discriminating dealers of America."

In further remarks General Whiting broke statistics down by explaining that the estimated 1951 volume for the furniture industry was down about 5%. "This is a preliminary estimate," he said, "and may have to be revised later."

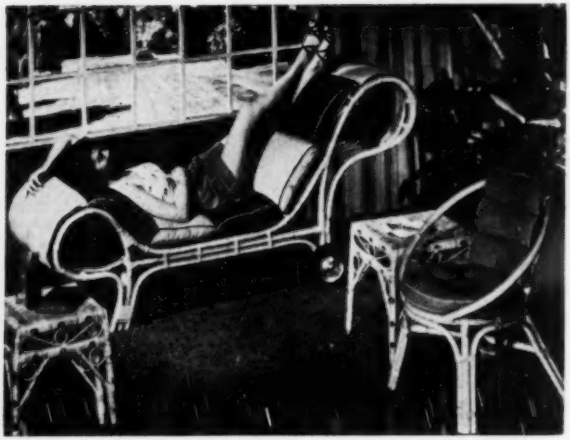
Cooperative efforts of manufacturers, retailers and other branches of the industry as well as magazine and newspaper publicity will help keep sales up during '52.

Dealers Buying

Dealers bought cautiously, on a 60-day basis at this market, but they made broad selections. The market was not a runaway, but on the other hand if every market did as well as this one, there would not be too many worries in the industry.

One manufacturer expressed his view of the market when he said, "Our plants will be kept busy for weeks and months to come, on a single shift, with overtime, on two and occasionally three shifts. And our salesmen and our mail will give us fill-ins, all through the spring months."

Attendance ran six percent over the 1951 figures probably making it the third best in American Furniture Mart history. Business booked at this market



This chair was designed by a Los Angeles doctor as a "heart relaxer." Shown with it are a "knitting chair" and occasional table. Made by Calif-Asia Rattan Co., Los Angeles.

definitely depended on aggressive sales effort.

A spokesman for a large mid-west company said that from their sales commercially styled furniture was in the background and that modern was now in recognized leadership. This same company plans to double their advertising for 1952 as well as expanding other promotional efforts.

While other manufacturers said the market was not setting a record, nevertheless they did pass up the volume which they had expected. Buyers bought in small quantities, but placed a lot of orders.

"We probably shall never hit the total again which we wrote at the 1951 winter market, but if we average every year what we did this year, we and the whole industry will be doing very well and likely better off than in up-and-down years such as last year," said Alfred Williams, vice-president in charge of sales for Consider H. Willett Co., Louisville, Ky.

Other Factors Affecting Sales

Fears of material shortages developing later in 1952 because of defense demands did not provoke any scare buying. Supplies seem adequate for the next six months, and the retail trade hasn't been able to look ahead beyond that period since 1947.

Manufacturers, squeezed between rising costs and taxes on the one hand and resistance to price increases on the other, have turned to design to entice consumer dollars and maintain profits. Several major producers of medium-price furniture have employed leading designers to create their new lines, which adapt styling and functionalism formerly found only in "decorator" pieces to the techniques of mass manufacture. Innovations go beyond frills and gadgets to basic changes designed for practical living.

Furniture and appliances are now stiff competition with other consumer goods. This fact is bringing manufacturers and retailers alike back to creative selling. With the marriage rate and the birth rate continuing on the upgrade, and 900,000 new housing units scheduled for construction in 1952, there is a vast potential demand for furniture and appliances. But to maintain sales levels of recent years, the public must be stimulated to buy!

Business Summary

For once, there seemed to be accord

Adaptable furniture for living-dining room combinations is light in scale and flexible. Drop leaf table can be pushed to one side when necessary. This group is part of a correlated "County Line" grouping by the Century Furniture Co., Hickory, N. C.

between manufacturers and buyers that merchandise was priced right. Producers pointed out that prices on some raw materials have come down, and these economies have been passed along to consumers or have helped hold the line against further increases occasioned by rising labor costs. Some were frank to state that merchandise was "priced to sell." Price reductions were slight, where present at all, but at least the furniture industry succeeded in checking the inflation spiral for the time being.

Few producers have taken advantage of the Capehart amendment to raise prices, but they are holding this as an "ace in the hole" should the state of business and production costs make increases desirable or necessary.

Retail inventories, swollen in the spring and summer of '51 as a result of "scare" buying earlier in the Korean affair, have been worked down to normal levels.

Cutbacks announced during the market because of the defense schedule did not upset either manufacturers or buyers. The former declare they will have ample materials for the next six months, and no one is making any predictions beyond that. Retailers have become wary of stocking up beyond their normal needs, since many were fooled on a false alarm last year, and the cost of carrying excess inventory is high.

Appliance, radio-TV, bedding, lamp and summer furniture manufacturers, who would be the hardest hit in event of metal shortages, are prepared to go to substitute materials if necessary, but for the present they have all the copper, brass, aluminum, chrome and steel they need.

This market perhaps came as close to being "normal" as any in history. There was a healthy balance between supply and demand. Showrooms offered an abundance of good merchandise, priced right, and manufacturers had the ability to produce and deliver

Old Captain's chair in ash with bamboo finish is shown in a dining room group. Drop leaf table, shown extended, is fitted with a revolving lazy susan which is detachable. These pieces are part of a correlated Ashcraft group by Heywood Wakefield Co.

it on time. Buyers had money and definite needs to fill, yet they were in a position to do some shopping. It was the type of marketing operation which brings greatest values to the ultimate consumers—into whose homes about 16 billion dollars worth of home furnishings go each year. It was the kind of market practically everybody in the industry hopes will be repeated.

Good Design Is Good Business

Furniture manufacturers have awakened to the fact that good design is good business, designers said in a press conference during the winter market.

"For years, designers have been suffering from an acute case of 'frustritis'," said Jean Watt, a designer with Edmond J. Spence, Inc., New York city. She stated that manufacturers have been sluggish in accepting new ideas, holding to a narrow range of patterns which they thought would sell. "Now the public has released us from our bondage by demanding contemporary, p r a c t i c a l styles," she said.

"We have been busy converting some of the commercial aspects of furniture into better things to live with at moderate prices," said Merton Gershun, Chicago designer. "We have been thinking of the average young married couple and the home furnishings they can afford, trying to give them something they can be proud of, and which won't be relegated to the basement after a few years."

Another prominent Chicago designer, Henry P. Glass, defined contemporary furniture as "that which uses the talent of any period, along with available resources, to serve the needs of that period." It will remain for history to bestow a name upon present-day styles, he said, just as the terms 'Gothic' and 'Barocque' did not come into use until many years after those periods had passed.

Ernest Swarts, Rockford, Ill., said he has kept the housewife in mind in designing for three manufacturers, because she is the one who has to live with the furniture of the time. "Pieces should have an informal practicalness," he said. "And they should be on a lighter scale than formerly to fit into today's smaller rooms. Of course they should be substantially constructed, and have waterproof finishes insofar as possible."

Free form shapes distinguish this pink-toned limed oak dining room-bedroom grouping designed by C. E. Waltman Associates. This grouping, by Basic-Witz Furniture Industries, Inc., Waynesboro, Va., shows contemporary form in dressers, buffets, drop leaf tea cart and an abstract three-shelf open hutch top. All pieces available in cordovan finish.

Swarts believes that some "modern" furniture lacks warmth of feeling, and said he has tried to achieve a transition between traditional and modern to give his furnishings a liveable quality.

John Keal of Los Angeles said west coast designers are trying to do the same thing as those in the east—design good furniture for mass production. He deplored the "machine look" in some modern furnishings. "As lives become more like machines, we are left one refuge—the home. Furniture should be designed with that in mind and be conducive to relaxation," he said.

Keal said rounded edges are more restful than flat surfaces, and advocated a "hand-crafted" appearance utilizing curved lines to counter-act the effect of mechanization.

Gershun and Jiranek were in accord that economic conditions had forced changes upon the manufacturers. "They either had to bring down prices on the old merchandise, or bring out new styles with new values," declared Jiranek. Both men said the sales slump of last spring had been a great influence on styles in this market.

Style Summary

"Contemporary" designs led the field over traditional styles three to one at the American Home Furnishings Market, but the definition of contemporary has been extended. "Contemporary" may cover furnishings with provincial, 18th century or other period feeling as well as what people have come to think of as "modern." This is based on the definition that contemporary uses the talent of any period in history along with the best available resources, to serve the needs of that particular period. Designers agreed that contemporary definitely excludes reproductions or furniture which borrows heavily from earlier periods.

Practicality, judged by present day needs, seems to determine the line of distinction between contemporary and period-styled furnishings. That which is scaled for today's smaller rooms, pieces which take their design from the use to which the furniture is to be put, are called "contemporary."

French provincial, and a blending of modern and traditional known as American provincial, gained ground in popularity.

From the most inexpensive to the most luxurious lines, the designer's influence was impressively evident.

New French provincial dining group executed in fruitwood with a warm tawny finish. Especially designed for young marrieds, furniture is by Mount Airy Mantel & Table Co., Mount Airy, N. C.

Gone was the "sameness" in dining and bedroom case pieces. In contour and design, in construction and trim, each manufacturer strived to be truly different. Drawer fronts were fluted, curved, architecturally treated, and designed in alternative arrangement patterns. Bases were unusual: there were trestle bases and pedestal bases; metal bases and wood bases.

Manufacturers came up with exciting new wood finishes, as varied as their names suggest: brown bisque mahogany, oak, and mink brown mahogany. While there continued to be many light finishes for all woods, tones were generally darker at this market. They had greater depth, warmth and were more "woody" looking. Finishes enhanced rather than obscured wood grain and texture.

Provincial Popular

Noted as a coming trend in recent markets was American provincial, that skillful blending of modern with early American. It is no longer just coming; it has arrived! It started with case pieces and has spread to upholstered pieces and occasional tables.

French provincial too, has been noted as a "comer" in the last year. The 1952 market has more French provincial bedroom, dining room, living room upholstered and occasional pieces than at any previous time.

Old world, yet gay and casual, French provincial has proved its adaptability to today's decor. The happy news for young marrieds is that French provincial is now available in moderate price brackets, instead of being restricted to custom lines as formerly.

Table manufacturers, who began offering French provincial cocktail, lamp and end tables at the last market, have now extended their offerings of pieces in this period. For the first time, many are going back to producing the tea tables, poudre (powder) tables, curio cabinets and other auxiliary pieces that originally were integral parts of a French provincial line.

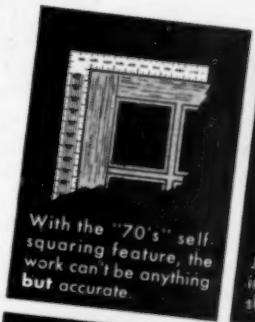
New Biedermier tables, executed in fruitwood with metal trim, were also very good at this market. Although Biedermier dates back to the 18th century, it is very adaptable for use with contemporary modern settings.

Many new furniture lines have been blueprinted with today's small apartments and shoe-box houses in mind. Furniture is lighter in scale than before.

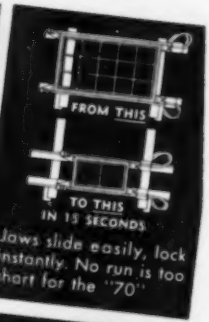
BUY NOW

for your Spring Sash Production!

Get set now with the Clamp that can do **more** work . . . at **lower** cost. With a Bell No. 70, about all the operator has to do is pin the sash! The "70" squeezes the work with smooth air power, and aligns each piece perfectly. Each set-up change takes only a few seconds. Finished work is consistently accurate. That's why 9 out of 10 manufacturers choose Bell Sash Clamps. We'll be glad to rush full information on the Bell "70."

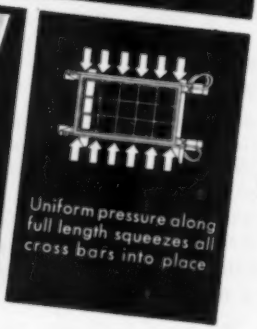


With the "70's" self-squaring feature, the work can't be anything **but** accurate.



Jaws slide easily, lock instantly. No run is too short for the "70"

Slight toe pressure on a valve is all operator does to apply pressure.



Uniform pressure along full length squeezes all cross bars into place

BELL WOODWORKING MACHINERY

THE BELL MACHINE COMPANY
71 Jackson Drive Oshkosh, Wis.

Ultra modern desk by T. Baumritter Co., Inc., New York City. Despite its sleek economy of line this desk borrows its sawbuck legs from early American styling. The chair and desk are new additions to the "Birchcraft" line and are available in birch and rock maple finished in butternut. Desk has one deep drawer and another long flat one.

Units have been designed to fill every section of wall space with functional pieces. There are corner desks, bedroom vanities with greater utility and storage space, triple nine drawer dressers, chests that stack one on top the other for fuller utilization of upper wall areas.

The combination living-dining room has brought many changes in dining groupings. Room dividers that are a buffet on one side, a book-case and storage section on the other, are being shown in increasing numbers. Built-on knick knack shelves are a new addition to many dividers.

Drop leaf extension tables abound in the new lines. They are ideal for large and small dining rooms and are particularly suited to the combination living-dining room. They can serve as console or hall table or as a dining table for from two to twelve persons. Drop leaf tables have been added to chrome dinette lines also.

Because the combination living-dining area lends itself to hospitality, it is fitting that many of the new cocktail tables, as well as small round dining tables, have built-in lazy susans that are handy for entertaining.

Unity and flow of design throughout the home, so desired today, is achieved through correlated groupings of living, dining and bedroom furniture. Table manufacturers, for example, are cooperating with upholstered furniture makers to design occasional tables that complement and supplement living room pieces. Many producers of bedroom suites are venturing for the first time into dining room furniture to match.

Correlated groupings have been given impetus by the one-story ranch home and the living-dining area concept in new apartment buildings.

All in all, the new lines are geared as never before to the tempo of the times, the architectural layout of our living areas, and the consumer demand for functionalism but beauty of design.

Juvenile Furniture.

Gray and green are the new predominating colors for juvenile furniture. Plextone, a washable, textural surface was also shown on many pieces. Utility is the emphatic note here with everything made easier for the mother. Drawers are at more reachable heights, wardrobes have automatic rods which come out as the doors are opened. Baby's bath tub moves easily on safety wheels.

Finishes are more versatile and pleasing to the eye. French provincial is interpreted by several firms in fruitwood finished maple or birch, antiqued gray or white. Yellow is also popular.

Automatically **LIDS MIXED SIZE BOXES**

up to 600 per hour!

One operator can lid up to 600 boxes of mixed sizes per hour on the *fmc* Random Size Box Lidder. As boxes are conveyed into the machine, it automatically adjusts the nailing chucks to the proper size, drives the required number of nails, and discharges the lidded box onto an outgoing conveyor, taking the place of several nailing machines which would otherwise be required to handle the same volume and variety of production.

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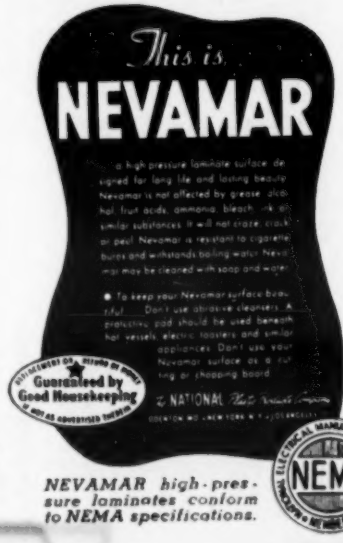
Tops for any surface!

NEVAMAR®

BUILDS IN LASTING BEAUTY AND DURABILITY

NEVAMAR is a surfacing material that combines beauty and durability with many unusual properties. It is extra hard, non-porous — permits nothing to penetrate its super-smooth pre-finished surface. Its colors are built-in—stay that way thru years of dependable service. NEVAMAR has proven its merits in years of performance on dinette sets, restaurant tables, counters, store fixtures—in restaurants, hotels, night clubs, offices, and industrial buildings. It is available in a wide variety of patterns, including many beautiful wood grains, to fit any decorative scheme. Would you like to examine a sample?



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The NATIONAL Plastic Products Company

Manufacturers of Nevamar Decorative and Industrial Laminates • **SARAN FILAMENTS** • Wynene Molded Products

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NEVAMAR high-pressure laminates conform to NEMA specifications.

Everything from baby carriages to baths has been redesigned in some way. Baby carriages have changed from the rounded basket to graceful tulip-shapes and modern square frames. Each item in juvenile lines becomes not merely useful for one function, but beads, painted-on games and attached "gimmicks" make the furniture much more enjoyable to the baby. Also much of the furniture is planned to grow up with the child.

Occasional Furniture

The correlated trend extended into occasional tables. These have been designed in groupings ranging from three to nine pieces, and groups can be considered larger when co-ordinated bedroom and dining room pieces are included. There was a scattering of individual tables, but even these seemed to match other finishes and were mixable with other forms in the same lines.

To correlate items within a line is not unsual, but this market marked the innovation of correlation between companies, started in the lamp industry several years ago.

In general, there were many additions in the contemporary form field of tables. Free form is still characterized by irregular shapes, not quite circles, ovals or angular pieces. Symmetry is no longer regarded as the essential. Since curves accent straight lines, the new cocktail, coffee, end, chairside and corner tables fit well with the new seating pieces and the television influence.

French provincial is the other obvious style, this one in a "return performance," slightly modified and in new apparel, right down to the wood material used. French provincial was usually "fruitwood" finished, which appears dull yellow-brown. Antiqued ivory was another finish and a sprinkling of gray finishes were seen. Gentle curving legs, simple routed line decorations, and smaller-than-expected sizes distinguished the provincial introductions.

Two of the most obvious stay-at-homes of the market were plastic-topped tables and KD construction.

At the last market several groups in almost every line were hard-plastic topped. This season, plastic was limited to spotty showing in a few lines.

KD, or knock down construction, which had been so improved with the introduction of new parts, was still available, but in small quantities and in not very many lines. Advantages of this shipping method are still overshadowed by dealer and consumer lack of understanding of this furniture.

Slide-out trays, magazine shelves and racks, book shelves, hidden compartments and closed cupboards were featured in both modern and traditional occasional items.

Use of walnut, maple and knotty pine has increased, with prima vera gaining popularity. Oak, mahogany, birch and cherry continue in dominance. Exotic woods and decorative veneers are widely used in both traditional and modern lines.

Cork, reed and wrought iron have become an integral part of many new groups in legs, tops and functional parts. Parqued surfaces are used extensively.

Brass was seen in polished and antiqued finish to decorate many pieces. Glass again showed prominent position for shelves and top surfaces of many new pieces. Mahogany in a natural finish was introduced in a successful combination with iron.

Gray walnut, French walnut and antiqued walnut appeared in a variety of periods. Limed and bleached woods were still very popular. Cordovan, new on walnut at the last market, is now used widely in walnut and mahogany

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WOOD WORKING DIGEST

CIRCULATION DEPARTMENT

WHEATON, ILLINOIS

WOOD WORKING DIGEST

FEBRUARY, 1952

READERS' SERVICE DIVISION

This insert (please note all four cards) is designed to help you obtain woodworking information. Any of these cards mailed to our Service Division will receive careful attention. There is also a form within the book for shop problems, used machinery, etc. Let us know when we may be of service to you. No obligation.

Please send information on PRODUCTS and SUPPLIES described on the following pages:

....

....

Name ..... **Position** .....

Company .....

Street .....

City ..... **Zone** ..... **State** .....

PRODUCT INFORMATION

A quick, free way to obtain information about the equipment and supplies you need to buy.

- Abrasives
- Adhesives, animal
- Adhesives, casein
- Adhesives, phenolic
- Adhesives, resin
- Adhesives, resorcinal
- Adhesives, urea
- Air Compressors
- Band Saw Tires
- Bits, auger
- Bits, dowel
- Bits, router
- Belts
- Boring Machines
- Chisels
- Clamp Carriers
- Clamps
- Conveyors
- Cutters
- Dimension Stock
- Dowels
- Drill Attachments
- Drill Press
- Drills
- Dry Kilns
- Dryers
- Dust Collecting Equipment
- Fasteners
- Files
- Fillers
- Finishes
- Glue Equipment
- Glues, electronic
- Grinders, knife
- Grooves
- Hardware
- High Frequency Heating Equipment
- Hogs
- Jointers
- Knives, moulder
- Knives, planer
- Knives, shaper
- Knives, veneer
- Lathes
- Lumber
- Machines, bending
- Machines, box & crate
- Machines, carving
- Machines, clamping
- Machines, door and sash
- Machines, dovetailing
- Machines, dowel
- Machines, filling & sharpening
- Machines, gluing
- Machines, mortising
- Machines, nailing
- Machines, sawmill
- Machines, saw setting driving
- Machines, stapling
- Matchers
- Moisture Meters
- Mortise chains
- Moulders
- Nails
- Packaging Material
- Paint
- Planers
- Planes
- Plywood
- Presses, plywood
- Putty
- Reasws, band
- Rippers
- Routers
- Safety Clothing
- Sanders, automatic stroke
- Sanders, belt
- Sanders, contour
- Sanders, disc
- Sanders, drum
- Sanders, endless bed electric
- Sanders, portable
- Sanders, special
- Sanders, variety
- Sandpaper
- Saws, arbor
- Saws, band
- Saws, chain
- Saws, cross-cut
- Saws, cut-off
- Saws, gang
- Saws, portable electric
- Saws, radial
- Saws, rip
- Saw blades, band
- Saw blades, carbide
- Saw blades, circular
- Saw Guides
- Screws
- Shapers
- Shaper Cutters
- Spray Equipment
- Surfacers
- Tackers
- Tenoners
- Trucks, dry kiln
- Trucks, factory
- Veneer
- Veneer Clippers
- Veneer Dryers
- Vises
- Washers
- Wheels
- Wood Treating Compounds

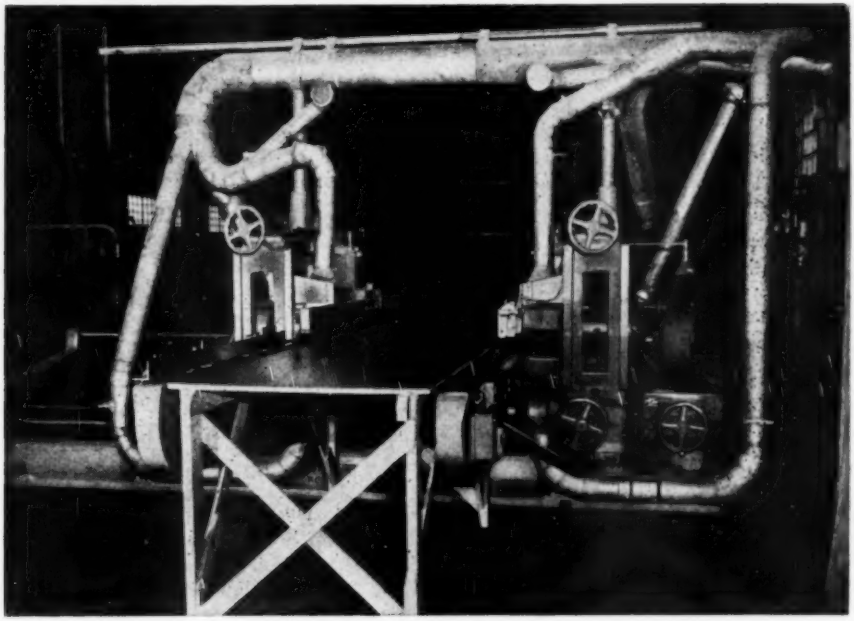
Data will come direct to you from responsible manufacturers. Your request involves no obligation.

Name ..... **Position** .....

Company .....

Street .....

City ..... **Zone** ..... **State** .....



Look to The Greenlee if you want Accuracy and Speed in sizing plywood

Accuracy and speed are inherent in the GREENLEE No. 545 Double-End Tenoner, because it was planned that way. And this means that the purchaser profits as a result of it, regardless of the use to which it is put.

Take the West Coast installation shown above as an example. Here is a GREENLEE No. 545 with all that is needed to make it a top producer. Purchased for sizing plywood and hardboard, it is fitted with roller hold-downs and hogging heads on the tenoning units.

Hogging the offal on the machine represents a real saving, since it eliminates conveyors and offal disposal problems. Why the wooden table between the chain beams? It was improvised by the customer to support the stock for a special operation.

Yes, the GREENLEE No. 545 is sturdy, accurate, and fast. Beyond that, it is so easily set up that short runs are often the rule rather than the exception.

Many design features are responsible for this, such as the dial system, mounting of the pressure beams — but all are illustrated and described in our 20-page bulletin. Why not ask for it now and learn of the many reasons why the GREENLEE Double-End Tenoner brings unusual accuracy and speed to plywood sizing. Greenlee Bros. & Co., 1862 Twentieth Avenue, Rockford, Illinois.

TOOLS FOR CRAFTSMEN

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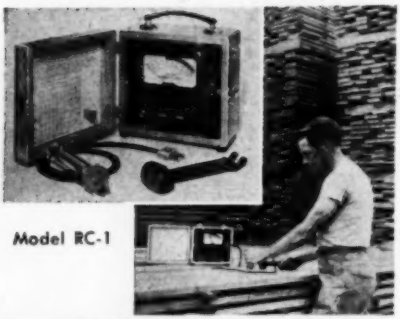
GREENLEE WOODWORKING MACHINERY: MORTISERS • BORERS • SAWS • TENONERS • PLANERS • SHAPERS • MORTISING & BORING TOOLS



Model RC-1

How Delmhorst Moisture Detector "has paid for itself several times"

. . . Texarkana Lumber & Supply Company tells of Moisture Detector benefits:

"We have been using your moisture detector both inside and outside of our dry kiln. By determining the moisture content of the lumber before planing, we are able to prevent the stock from bluing or molding in the bins after the stock is stored in the finish sheds. In this way the instrument has paid for itself several times.

"Also at times the moisture content of lumber is required on certain orders to be not over a certain amount. By using the moisture detector to determine the content of the lumber before delivery, we do not take the chance of delivering the lumber and having it rejected because of excessive moisture content.

"Again, many times the moisture content of lumber is a source of disagreement over a sale. We have found the moisture detector an excellent way to settle such disagreements.

"We can recommend this instrument highly and have found it to be satisfactory and accurate in every way."

Moisture Detector Features

Your business, too, can profit with a Delmhorst Moisture Detector. Use it to quickly determine moisture content of *any wood product* —there are no calculations to make—no conversion tables required—merely read the precise percentage of moisture content (within 6-65%) *direct* from the dial!

10 Day Free Trial

Fill in the coupon for complete information. Or send for a Delmhorst Moisture Detector on 10 days free trial—at no obligation. *Mail the coupon today.*

DELMHORST INSTRUMENT COMPANY
607 CEDAR STREET • BOONTON, NEW JERSEY

☐ **Please send, without obligation, a Model RC-1 for 10 days free trial.**
☐ **Please send complete information.**

Name.....
Firm.....
Address.....
City and State.....

and in two shades, red and black.

Silver fox, a white streaked black and ebony was among dramatic attempts. "Fawn" was the most important new color of the market. This finish is a grayed-brown shade used on many oak groups.

Two and three levels and high decorative qualities were seen in quantity. Carving, beveled edges, and cut-outs dotted the legs and rails of tables throughout the showing.

Case Goods

Everywhere—especially in the modern lines—the trend in case goods was to "correlated groupings." More than that, they were usually "functional" correlated groupings, in other words, dual-purpose or suitable for use in almost any room in the house. They included collections of living room, dining room and bedroom furniture all of the same design, so that they "go together" and give a unified feeling to the home.

The first charateristic of offerings at this market was this: While furniture is designed to serve practical and utility interests of the public, it also puts the accent on beauty, so that the merchandise is something to look at as well as to use.

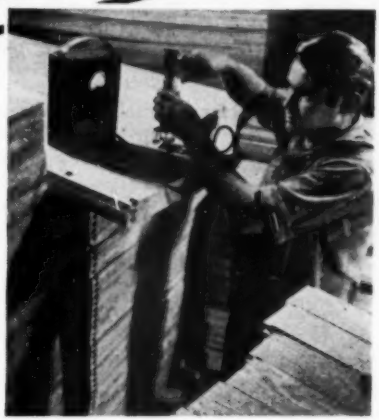
Thus, in addition to seeing functional pieces, such as chests that open to serve as bars or desks, buyers admired the casual new lines and curves (some of them showing strong French provincial influence), the use of cane inserts, the extended use of tambour doors, the application of wrought iron trim, and of course, the whole new range of finishes, from bone-white to chinchilla (a smoky black).

The idea of free-form has been borrowed from occasional tables and applied to case pieces. One major manufacturer features chests, desks, vanities, dressers and servers with free-form-

MORGAN

America's Largest Supplier of Completely Machined Maple Dimension Stock

after 25 years insists always on QUALITY



A QUALITY CONTROL DEPARTMENT . . . also our own DESIGN AND DEVELOPMENT DEPARTMENT, will assist you in engineering your product efficiently . . . and over FOUR HUNDRED EMPLOYEES whose primary interest is *Quality* will turn out your order in Quantity – and on time.

Dimension stock in Appalachian hardwoods: maple, oak, ash, poplar, birch, beech and cherry. Also mahogany and walnut.

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tops and mirrors. Scoring, or as some firms call it, "scratch-lining", has been used on many of the case fronts to give multiple-drawer effect.

More of the case pieces are up on legs, or their recessed bases are tapered or slanted in some way to give a lighter look.

The three most notable features in bedroom furniture are: 1) The disappearance of the old "three piece" suite, which has been replaced by a bed and cabinet side pieces instead of the night stand, and double or triple dressers, all designed to fit into 1952 interiors; 2) The emerging of French provincial pieces from higher-priced, semi-custom-made lines into the medium and popular price brackets; 3) The blending of sturdy woods and tailored design into a sort of American provincial style trend.

Drawer fronts are fluted, curved, architecturally treated, and designed in alternative arrangement patterns. Bases are unusual: there are trestle bases and pedestal bases; there are metal bases and wood bases. One manufacturer featured New Orleans style wrought iron bases for knotty pine. chests and dressers.

Cane trim on bedroom and dining room case pieces, as well as on occasional tables and upholstered pieces are a new fashion note. Sectional sofas are being shown with cane inserts on the sides. Buffets have sliding cane doors, frequently alternated with glass doors. Simulated split bamboo, executed in a plastic fabric, is shown for chair seats and backs as well as for decorating case pieces.

No hardware hardship was noted, but pull-less models were seen in many lines. Where hardware is used, the design is usually small, neat and novel,

Master Mind of The Moore Cross-Circulation Drying System

Let the Moore Master Recorder-Controller take the "guess" out of seasoning: This single instrument contains four separate dryer controls: ★ Automatically controls roof ventilators, conserving steam and fuel — ★ Automatically controls and records temperatures at each end of kiln independently — ★ Automatically controls and records humidity inside kiln.

Get The Facts, and You'll Get a Moore Cross-Circulation Kiln

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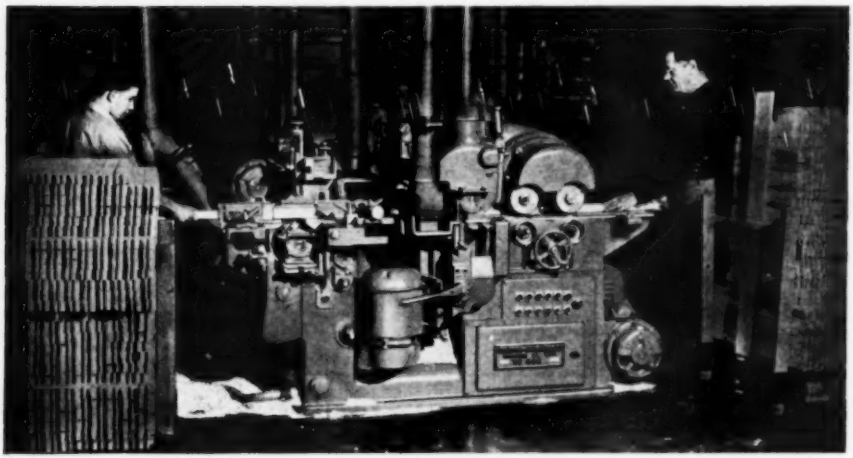
Oldest and Largest Manufacturers of Dry Kilns and Veneer Dryers

JACKSONVILLE FLORIDA | BRAMPTON, ONT. CANADA | VANCOUVER, B. C. CANADA | NORTH PORTLAND OREGON

NEW MACHINERY IS A GOOD INVESTMENT

If you will compare the *actual costs* of producing parts on old machines with what you can accomplish on *new* machines, you will see that the savings alone are enough to *pay* for the new machinery within a reasonable time. At the same time, you will probably enjoy the advantages of better quality finish and greater accuracy and uniformity, *at no added expense*. Check your costs now, and then see if it wouldn't *pay* you to invest in some *new* machinery.



The photograph shows installation of an ECCo Hi-Speed Moulder in a Midwestern specialty shop in which productivity has been doubled.

EKSTROM, CARLSON HI-SPEED MOULDERS

REDUCE COSTS, IMPROVE PRODUCT

Actually, how well you can do with a *new* Moulder depends a lot on what you are doing now. One fellow doubled his production. Another fellow wanted to put 25% more footage through, because he got paid by the foot for everything he could handle. Another one wanted, and got, better finish, which was enough to eliminate a sanding operation. Most of these benefits are due to the fact that ECCo Hi-Speed Moulders have cutter speeds adjustable from 3600 r.p.m. to 7200 r.p.m. *without use of frequency changers.* Also, jointing of the cutter heads for high-speed work is a comparatively easy operation. Feed rate is quickly and continuously adjustable between 25 and 225 f.p.m. All in all, ECCo Hi-Speed Moulders offer you many money-making opportunities — get the full information as it applies to *your* operation.

EKSTROM, CARLSON & CO. **ECCO** **1411 RAILROAD AVE., ROCKFORD, ILL.**

MOULDERS · SANDERS · ROUTERS · SHAPERS CARVERS · PANEL SIZERS · GROOVERS

and "pinpoint" pulls are frequently combined with larger pulls of like design on the same case.

The trend of the 1951 summer market to family-size dressers has gained ground to the extent that 10 and 12-drawer dressers are often standard.

Promotional lines, too, caught the quality and eye-appeal fever, with pine, maple, gumwood and print-finish wood groups made to satisfy exacting tastes, as well as to sell. Some of the features of higher-grade lines, such as center drawer guides, peg tops, solid brass pulls and more rigid construction, have been incorporated.

Speeding Turnover
To Improve Business

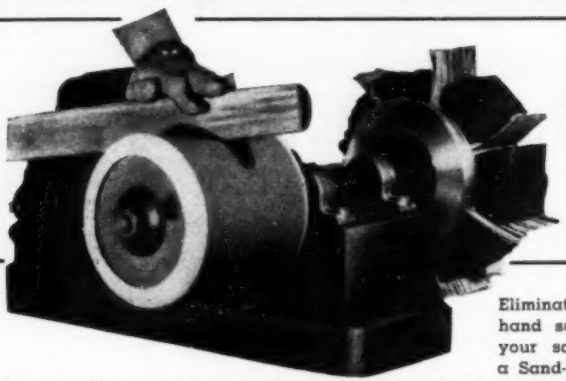
It seems that comparatively recently manufacturers and retailers have learned that Mr. and Mrs. America are quite content to use furniture that may be 15 to 20 years old. If the furniture industry is to continue to grow and even to maintain the growth it has achieved, it may be necessary to persuade its public that new furniture is important. Enlisting the aid of Dame Fashion has proved of real help.

Television, of course, has accounted for boosted sales and changes in design. But it is also true that other style trends are sometimes unwittingly created. For example the outbreak of the Korean conflict has forced the manufacturer to look ahead and plan for furniture without metal—result has been good designing with grooved drawers.

An example of publicity resulting in sales has been the prominence given the ranch style house. So ranch style conscious has the average housewife become, and in turn influenced the designer, that ranch style furniture is included in almost every line.

Furniture manufacturers and de-

SPEED UP YOUR SANDING OPERATIONS



USE A SAND-RITE "DUO" SANDER

Eliminate costly and tedious hand sanding . . . speed up your sanding operations with a Sand-Rite "Duo". The "Duo" is a combination pneumatic drum and rotary brush sander that will produce A-1 finishes on wood stock of rounded contour and irregularly curved shapes.

WRITE TODAY FOR FULL INFORMATION

SAND-RITE MFG. CO.

Dept. W., 226 W. Schiller St.
Chicago 10, Illinois

signers must continue to create a style conscious public. It is not enough to produce the fine goods we saw at the winter market, but the public must be made actuely aware of its existence and of their need for new furniture. Manufacturers should create in the minds of the consumers a demand for furniture style changes and make the periodic selection of a new living room suite, for example, as important as the selection of a new Easter bonnet or a new 1952 automobile.

The publicists are boosting sales, but there are undoubtedly many new slants to be developed which will help Mr. and Mrs. America become as style conscious and react accordingly to a 1929 dining room set as they would to a car of the same year.

This is the job to be done! It cannot be done single-handed, but needs the efforts of the designer, manufacturer, retailer and the press. If it is done successfully, the furniture industry will continue to receive its share of the American dollar.

The End

ANNOUNCES NEW BROCHURE

The United Buff Products Corp., 249 Oak St., Passaic, N. J., announce their new brochure describing the various features and applications of the pressure-cooled "airflow" buffs and "aircon" wheels.

The airflow buffs are designed to provide substantial reductions in finishing time and permit higher production with no sacrifice of quality. The design and construction of these buffs are such that cooling air not only circulates but is forced through the wheels, expelling the generated heat and resulting in a much cooler operation with longer wheel and compound life, we are told. The brochure is well illustrated with pictures and charts.

100 YEARS of Progress

in the development and manufacture of Woodworking Machinery assures you top quality when you purchase Goodspeed Planers.

GOODSPEED
Double Surface Planers

These Planers are made for accurate and finely finished work: plane any kind of wood on both sides in same operation. Simple in design, powerfully built for years of service with operating expense minimized by use of Anti-friction and Removable Bronze Bearings on Feed Rolls. Come in 24" — 30" — 36" widths.

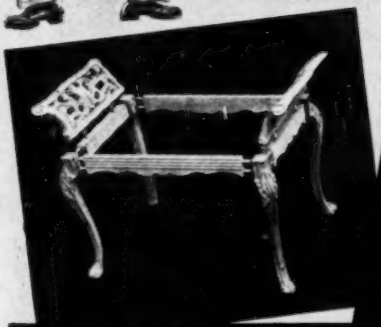
Capacity: Boards of full width and from 1/8" to 7" thick.
Feeds from 20 to 100 feet per minute, two feeds for each machine, according to rates of feed ordered.
8 roll type, 6" diameter feed rolls.
2 sectional infeed rolls
Sectional chip breaker
Furnished with 4 knife and 6 knife round heads mounted on ball bearings.

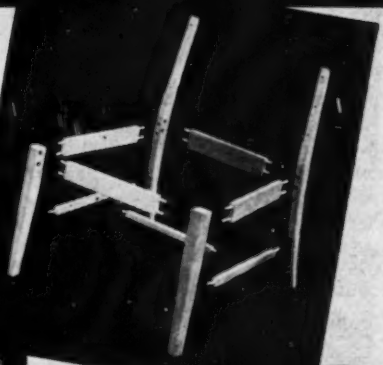
Send today for free Anniversary Bulletin

GOODSPEED MACHINE COMPANY
WINCHENDON, MASSACHUSETTS

BORING BILL SEZ

"ROOT DOWEL BORERS WILL SAVE YOU TIME • SAVE YOU MONEY DO ALL YOUR BORING • LAST A LIFETIME"

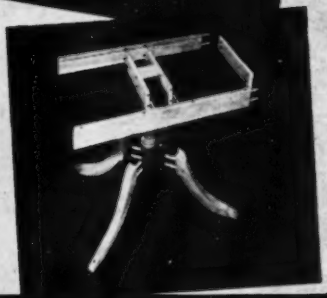


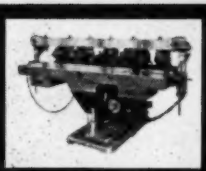


There is a Root machine to bore your furniture parts quickly and accurately. Duplicate parts will be precision bored so that assembly costs will be reduced. Root machines are flexible, double, triple—up to eight holes bored at one time—straight line or offset patterns and on close or extended centers—each machine will handle many different boring jobs.

High speed electric or geared spindles cut free and clean for all dowel and screw holes, with holes bored to exact depths.

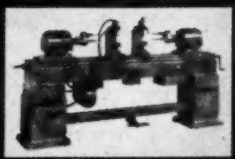
There is a borer for your needs in our extensive line. Below is shown a few of our many power and manually operated machines. Write for detailed literature or send samples of your boring jobs for immediate proposal.





Style 0200 Electric Spindle Multiple Borer.

Style D150 Foot and Hand Feed Borer with electric spindles.



Style N222 Double End Power Feed Borer.

Style CH Multiple Gang Borer.

B. M. ROOT CO., YORK, PA.

Conservation of SPECIES

Through Proper SELECTION

a panel discussion

THIS month we begin a series of panel discussions on subjects which should be of vital concern to all of us in the woodworking industry. Our plans are to bring the opinions of outstanding men from various parts of the United States before WOOD WORKING DIGEST readers.

Perhaps the start of this idea came to us some months ago when one of our editors—searching for a story—came across a box shook manufacturer cutting down whatever was at hand without any thought as to whether the wood was best suited for that particular utilization. In this particular instance the material at hand was a species much sought after by the furniture industry. Had this man marketed his timber at current prices, he would have been able to buy lumber suited for shooks and still be ahead financially. Possibly this is an exceptional case, but we do know from our contacts in the field that there is still a lot of research and education to cover this subject and make each of us eager "to get the mostest from the bestest." (Frank T. Parrish is responsible for giving us the quoted slogan above.)

What is being done in your part of the country, or what are you doing yourself to conserve species through better utilization? We'll be glad to hear from you and if you have questions or wish additional information on other phases of this subject, we shall try to help you in any way possible.

HERE'S WHAT WE ASKED THE EXPERTS—In thinking of the subject "Conservation Through Selection of Species," will you answer some or all of the following questions: Is there any organized effort in your area for educating people to optimum use of all lumber? Do you know of constructive work that has been carried on within the last several years to better the condition? How could lumber in your area be controlled and put to better use?"

WEST COAST SAYS

Robert O. Leonard, for the Western Pine Association, has a most encouraging report from his area.

We in the western pine industry are extremely interested in the subject "Conservation Through Selection of Species," but not because we fear any immediate shortage in supply of our timber.

We do recognize, however, that our forests must be managed, and managed properly, in order to continuously produce sufficient lumber of sufficient kinds, or species, for the nation's present and anticipated requirements. And our forests, scattered as they are through 12 western states, are currently able to deliver a comparative multitude —our members produce 10 different

Robert O. Leonard
Western Pine Association

species—of woods suitable for any softwood purpose.

It's our objective to keep them that way.

To do it requires effort in two primary directions. We must educate wood users in the merits of all our species, and we must keep our producing members alert to the necessity and methods for top quality manufacture of those species so that trade acceptance will not languish under dissatisfaction with the product.

With a profitable value once attachable to the species, the supplementary force of education in forest management comes into play, among both industrial timber owners and small woodlot proprietors who, in total, control a very important proportion of our area's timber.

To accomplish these objectives, the western pine industry operates through several important arms of its association. It's the promotion department's job to kindle interest and use of each of the species. It's the work of the research and grading departments to develop and advise on methods for manufacturing and seasoning the lumber. And it's the continuing job of the forestry staff to recommend forest management procedures that will insure adequate protection and growth of all of the woods.

Let's take a typical example of the program in practice. In 1940, three of the associated woods of the western pines—larch, Douglas fir and white fir —amounted to only 12 percent of the region's total lumber production. And that situation had prevailed for years. After World War II, it became apparent that a fair return on total timber inventories, plus some assurance that natural forest reproduction would not exclude the western pines (Idaho white pine, ponderosa pine and sugar pine), required harvesting of these three associated woods.

A trade promotion campaign was undertaken through the media of trade advertising and literature to point out the woods' merits for specific uses. Intra-industry promotion to impress upon producers the trade value of accurate manufacture, thorough seasoning and careful grading was placed on a sustained program basis. Foresters developed information on regeneration habits of the three woods and their relationship to harvesting practices.

By 1950, the three species together accounted for 33 percent of total western pine region output.

Footage figures reveal the increase even more strikingly. Douglas fir production in 1950 had jumped to 317 percent of the 1940 figures (from 400.1 million to 1269.3 million). Larch output had increased to 311 percent (from 128.9 million to 400.8 million). Production of white fir had soared to an astonishing

855 percent (from 101.2 million to 865.7 million).

But the remarkable development was not made at the expense of the pines, for in the same period their production had skipped from 4500.7 million board feet to 4780 million—a 6 percent increase.

Evidence that use of larch, Douglas fir and white fir was not just a temporary measure in a time of an acute supply situation is disclosed in the fact that during the 1949 business recession, when total western pine and associated woods production slipped 8 percent, the decrease was about even with all ten species.

But periodic campaigns are not the only means of spreading the message of conservation, nor the only justification for it. The primary objective of the western pine industry's forestry department is to promote the establishment of continuous production programs among members who own their own timber and among the many small woodlot owners in the region.

That is done by means of the "Tree Farm" program. Each of the forestry department's five district forest engineers promotes the idea of tree farming, accepts applications for new certifications and maintains constant checks on adherence to "Tree Farm" requirements for protection against fire and disease, for selective harvesting, etc. There are currently nearly four million acres of privately-owned timberlands in the western pine region certified as tree farms. More are being added monthly.

Nor is education of the wood user conducted only on a campaign footing. Publications on each of the ten western pine and associated woods species detail their uses in construction, for woodworking, in industry and all other places where wood is used. Eight field

Conservation of species suffers here when the over-ripe section of giant Douglas fir shows that the tree was already past maturity when cut. Note the sign of decay in the heart of the log.

representatives of the association constantly call on retail dealers, architects and other woods users to offer advice on the proper use of the region's woods.

There are, of course, misuses of lumber, by species and by grades. Almost without exception they are done through ignorance, not by intent. Misuse of lumber by species is rare but misuse by grade is all too common and, strangely enough, usually involves using a higher, and therefore more expensive, grade than the job requires. By definition of this discussion, reference to misuse by grade is not entirely pertinent but it does involve conservation because of the restricted amounts of higher grade lumber available from the log.

Use of select (clear) lumber, for example, for a purpose requiring that the board be cut up, as in furniture making, is misuse. Considerably more available and usually considerably less expensive are shop (factory) type pieces graded according to percentages of clear cut-

Charred remains of the fire of 1910 which burned an area 120 miles long and 25 miles wide through northern Idaho and western Montana. Obviously the subject of fire prevention has an important place in any conservation program.

tings obtainable. For many foundry pattern and furniture making purposes, shop lumber will serve with equal facility and greater economy than will clear lumber.

There is no feasible means of controlling the proper use of lumber. Nor, within a free economy, should one be attempted. But by diligent education of wood users on the properties, uses and grades of western pines and associated woods, a broader understanding of correct use can be obtained. The demand that arises therefrom will, by the force of economics, produce conservation by equalizing production proportionately throughout the range of available species.

It cannot be accomplished overnight. But as it has been done for larch, Douglas fir and white fir so it is being done for incense cedar, inland red cedar, Engelmann spruce and lodgepole pine—remaining species of the seven associated woods. So well known are the three pines that use education is a problem of vigilance, rather than indoctrination.

If you wish further information about tree farming, utilization of western pines, etc., write to the Western Pine Association, Yeon Building, Portland 4, Oregon.

NORTHEASTERN AREA REPORTS

This month we are presenting two men from this area. One we might classify as definitely in the educational field—C. R. Lockard, Chief, Forest Utilization Service, Northwestern Forest Experiment Station, U. S. Department of Agriculture, Upper Darby Pa.

Strangely enough, considering that wood production was one of the first industries here in the northeast, a big job remains to be done in educating primary producers of forest products. The Northeastern Timber Manufacturing Association has for some time been conducting schools for producers designed to demonstrate the character of the grades and the process of grading both eastern white pine and hardwoods. The Vermont Forest Service has embarked on a program of small mill analysis which will give instruction on proper sawing and grading for use.

Starting back a step, the Northeastern Forest Experiment Station's Forest Utilization Service has been working with foresters and lumbermen to get an understanding of a system of timber grading developed by the Forest Products Laboratory, the use of which should enable timber operators and mill men to do a better job at allocating ordinary grades of logs to proper end uses.

We have a highly developed specialty industry here which knows its woods pretty well, and because of shortages of the grades and species required pretty much, sees to it that the bulk available

C. R. Lockard
Northeast Forest Experiment Station

moves into the proper channels.

Much of our structural use is governed by building codes. The Forest Products Laboratory works with code authorities to help keep them up to date, and to see that wood requirements are in line with use needs.

One of the big factors in species selection is the by-passing of species which present operational difficulties. In the northeast, American beech is one of these. To help the industry to use beech properly (and thus permit good forestry), a technical committee has been working to pull together all available information on beech; a series of 23 bulletins is planned. The first of these is just off the press.

It is probable that in an industry as varied as that using wood, there are many places where the wrong wood is selected. To discover these, is a wood engineering job. Furthermore, economics may dictate a certain kind of wood for a certain use, when a lower grade would serve adequately, but might take more effort to put into shape.

The various lumber associations, the U. S. Forest Products Laboratory, and its associated Forest Utilization Service at the Northeastern Forest Experiment Station, the various forestry colleges (Maine, New Hampshire, Connecticut, Massachusetts, New York, M. I. T., West Virginia, Yale,) all these organizations are available to aid industries in getting the right wood. The trade papers have

A modern lumber mill. Aerial view of Weyerhaeuser Timber Company's fully integrated plant at Springfield, Oregon. Engineered for full utilization, the plant has no need for once familiar waste-burner. Sawmill by-products are either used for the pulpmill or fuel for the power plant. The pulpmill also provides a market for sound waste wood, such as mill trimmings, from other sawmills in the area.

also been very helpful. The Forest Products Research Society has been very useful.

In an area as diverse as the northeast, demonstrations by associations and extension groups, clinics for particular industries and short courses in wood technology and associated subjects (drying, gluing etc. will go a long way towards bringing best information to the shop foreman, designer, and purchasing agent. Strengthening of the Forest Utilization Service of the experiment station would aid the small man particularly.

Frank T. Parrish
Heywood-Wakefield Company

The second man chosen to represent the New England area is Frank T. Parrish, Exp. & Dev. Mgr., Heywood-Wakefield Co., Gardner, Mass. He is well known throughout the field and has a fine background in the industry.

As any New Englander would appreciate, the broad subject of improved practice of conservation and utilization of our native woods, can, in a few words, be quickly reduced to its lowest common denominator.

Therefore, we are going to discuss what is being done, and what can still further be done to "get the mostest of the bestest" out of the lumber from our northeastern forests.

"Wooden Dollars" this down to earth term for forest economy was used as a title of a booklet recently published by the Federal Reserve Bank of Boston, covering in quite some detail the economic value of New England's forest and related industries. I hope all of you interested in forest products have had a chance to read it.

Let's make no mistake about it, in order for any forestry or wood utilization project to be sound, the investment must show a fair return in dollars and cents for the cost and effort involved.

It is hoped that by pointing out such specific cases of improved wood utilization that are paying dividends, an overall optimum use of lumber will result as more become interested in such practice of improved forestry and utilization.

As a member of the wood industries' steering committee of the New England Council I have had the opportunity to become acquainted with the various agencies that are working toward the goal of improved wood utilization. Time and space does not permit a full account of them all, but here is a partial list, most of them covering all of the New England States: Federal Reserve Bank of Boston, Forest Economy Division; New England Council, Wood Industries Committee; U. S. Forest Service, Northeastern Forest Experimental Station; the New England Forestry Foundation; the Northeastern Wood Utilization Council; Northeastern Lumber Manufacturers Association; Forest Products Research Society; New England Section, Society of American Foresters; Northeast Pulpwood Research Center; Container Associates Timber Owners Trust, Greenfield, Mass.; Bureau of

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Industrial Research, Northfield, Vt.; Society for the Protection of New Hampshire Forests; Connecticut Wood, Inc., New Haven, Conn.; state, county, and farm foresters of all the New England states; Universities of Maine, New Hampshire & Massachusetts; Harvard University, Harvard Forest & Yale School of Forestry.

All of these groups are doing much to promote improved forest and wood utilization practice in the northeast. A considered opinion of the New England Council's wood industries committee is of interest. It felt that rather than duplicate such work as these groups are already doing, it would generally confine its efforts to furthering the publicity of the outstanding specific examples of accomplishments by these groups. In this way it felt that greater gain would be made toward the goal of widespread practice of improved forest practice and utilization.

Selecting the best species is a big opportunity to run up a high score on the conservation chart. It is important to realize that not only does one get points for correct selection but also get them taken away if a wrong selection is made. And it isn't just a game either, those points are actually good hard dollars and are what pay off in the end.

A list of a half dozen "do's" and "don't's" are set fourth herewith as a partial guide in the selection of species of northern cut lumber for optimum utilization.

DON'T	*DO*
Mix white birch with yellow and black (or sweet, revert) birch.	*Keep the Betula papyrifera separate for the novelty turning or dowel markets, and the Betula lutea and Betula lenta will be upgraded in value.*
Cut and saw beech without a definite end use in mind, and don't mishandle or allow to lie around green as beech downgrades very easily.	*Plan for the market first. Beech is an excellent wood for bending as well as other specialty items. Be careful in the handling, consider end piling or kiln drying directly from the saw to prevent surface checking and degrading.*
Try to make sharp radius bends from unselected birch.	*If birch must be used for sharp bends, select straight grained sap lumber, or better, use beech or maple which will give a better bending yield.*
Use oak for bends where it is necessary to speed drying time to one day turnover as excessive damage from checking and honeycombing will result.	*Substitute ash, which can be bent more easily than oak and dried on a 24 hour cycle for heavy stock or a 3 hour cycle for 1" stock.*
Cut and saw crooked logs on a long saw mill as very little high grade lumber results.	*Set up a separate bolting saw and make clear cuts in short lengths. There is a good market for this clear material.*

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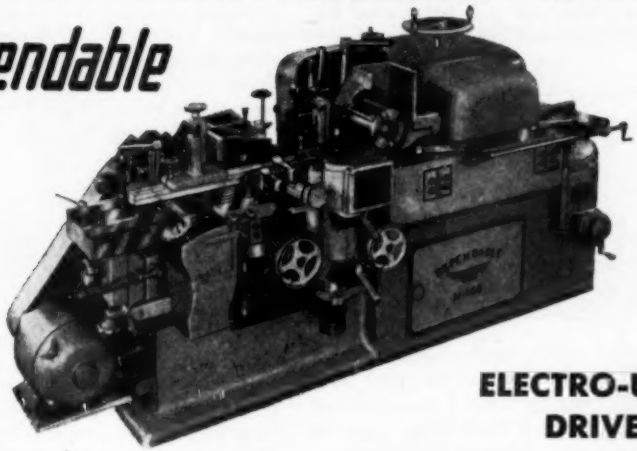

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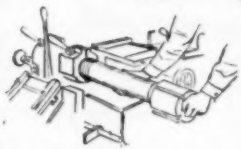
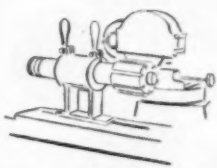
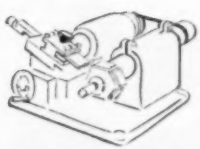


Quick, easy removal of Cartridge Spindle Unit



Head being ground on Cartridge Spindle Unit



Head being jointed on Cartridge Spindle Unit

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Something about it for a long range economy as the Brown Company is doing by setting up to obtain high grade clear cut to length stock from selected bolts, returning all waste to the pulping operations along with the regular run of lower grade pulp bolts.

With all forward marching enterprises, there constantly crop up cases of adverse practices or individual unsound projects. The field of improved wood utilization is no exception.

Only the other week I had a visit from a manufacturer confronted with a problem arising from a new federal specification on a furniture item on which he was a successful bidder.

It called for a bending, the radius of which was so small for the heavy stock involved, that obviously from all my experience and from data listed in the Forest Products Laboratory treatise on bending fatigue, 95 to 100% failure was all that could be expected. I advised him to use these figures as a basis of argument in an appeal for having the specifications revised. The contract also called for a portion of the order to be made from a wood that has almost no bending ability regardless of radius; definitely an economic waste.

During the past year several projects with which I am familiar, all with the good intent of utilizing waste wood,

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—Imperial Furniture Co. Grand Rapids, Michigan

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have failed in their accomplishment. In each case, the fact that waste or offal from an unrelated product could be used for these smaller end u_e items was sound.

The fault, however, was in the methods of operation, fabricating and handling the waste material. The individual machining operations and the exces_ive handling of the original waste material along with more handling of the waste on the waste was more costly than the original material savings.

It is quite possible that, with the exception of one of these cases, a restudy in the handling methods would have made the project economically sound.

In many cases maximum utilization cannot be had within one industry. This is particularly true of most of New England's wood products manufacturers. On the west coast large operators such as Weyerhaeuser can well practice integrated production, but in New England only when two or more manufacturers cooperate can the benefits of integrated operation be fully realized.

Surveys have shown where waste or offal from one manufacturer, or from a group of smaller manufacturers in one area would be sufficient to maintain full production of a manufacturer in a different industry or of a different product.

An outstanding case for example would be a chipboard or hardboard manufacturer that might locate in the Gardner area and make use of the more than a hundred tons of waste per day that the chair and furniture factories develop in this area alone.

Also other instances have been recognized and are under serious study where a good portion of the raw ma-

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terial of one manufacturer (or industry) is far higher grade than is necessary but would be better suited for a higher valued product of another industry. There is a tremendous opportunity for example, for those in the pulp and paper, veneer, and the furniture and like industries to cooperate, and several such projects are now well beyond the thinking stage.

This first panel discussion in the series should help in laying the foundation for better utilization of species in your own area. Again may we ask that you let us know what organizations and individual firms in your part of the country are doing? In this way, through a free exchange of information we may all profit to "get the mostest from the bestest."

If you are too busy to laugh, you are too busy. **—Baltimore Beacon**

WOODEN SHIPS

Down to the sea in ships, wooden ships, is again receiving more than ordinary attention. If you are in a position to take advantage of the situation because of your manufacturing facilities, this paragraph should be of genuine interest if you're not already aware of the facts. Wood continues to be an important shipbuilding material and a source of supply of choice structural timbers. This supply is possible because of the laminating techniques developed by American ingenuity. The strength and durability required to withstand the destructive forces and organisms of the sea differ considerably from requirements needed to withstand the forces encountered on land and in the air. Laminating of wood shipboard members has largely solved the size and quality requirements. The one great weakness is our inability to date to provide wood that is fully resistant to deterioration. Notwithstanding which we still have in wood a superior product for boat building.

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IS *Bending* of SOLID WOOD Becoming a Lost Art ?

Part 4

BY PAUL H. GRAHAM

THE bending principle of the rim bending machine is somewhat similar to that of the metal pipe bending machine in which the part to be bent is supported at all times along the radius of the bend by rollers. The stock is fastened at the center and bent simultaneously from the middle to both ends by means of a pair of sliding roll attachments. The stock is contained by a bending strap and the ends are fastened with tie rods or bending hooks, depending upon whether the stock is to be dried on the form or just in the strap. A supporting member is usually driven in between the widest part of the bend if the bend is to be dried in the strap off the form.

The straight press bending machine carries a center block on a bending slide for mounting the desired form and moves into a master strap which holds the stock to be bent to bend it to the shape desired on the form. The bent stock is then clamped and removed so that the operation can be repeated. The bent stock is contained in a separate bending strap and held by tie rods so that separate forms for each bend are not required. This type of bender will bend stock up to eight inches wide and two inches thick and up to six feet long.

These machines are either hydraulic or motor-driven. The length of stroke is limited by valves on the hydraulic machines or by limit switches on the motor-driven machines to insure stopping at the desired position. This action on the motor-driven machine is made positive by means of a solenoid brake which stops the motor instantaneously. The travel of the bending slide on the hydraulic machine is actuated by hydraulic ram and on the motor-driven machine slide travel is provided by means of a large square-threaded screw which is motor-operated through a reduction unit to extend or retrieve the slide.

An interesting installation of the hydraulic straight press bending machine is found in a New England plant which makes Windsor chairs exclusively and is used principally to bend chair back bows and arm rails. The bending strap loaded with conditioned stock is placed in the bending machine and tightened by a mechanical clamp at the center point so that it is firmly engaged with the master bending form. Two operators then mount steps at either side of the form and as the bending slide forces the two ends of the bending strap around the form, they equalize end pressure by manipulating hand screws at either

Steam bending makes possible the attractive flowing lines of this Ashcraft living room group. All frames in this furniture setting are steam bent from solid ash.

end of the strap to provide retention of sufficient end pressure without too much compression.

After the slide has forced both ends tightly against the top of the form, they are anchored by means of a tie rod placed in anchorage points provided in the strap. A special wooden jig, designed to support the inside of the bent portion during drying, is then driven between the two sides of the bend and the loaded strap is removed to the dry kiln to dry and set the bend.

Another unusual machine designed for dry bending consists of gas heated rolls positioned somewhat after the fashion of metal bending rolls. The stock to be bent is ready for use upon leaving the rolls and can be bent without preliminary softening. The rolls on this machine are adjustable and about 40 inches long which gives the machine capacity to bend wide stock or for the multiple bending of narrower parts.

There are many more special bending machines but those mentioned are in most common use to bend all sorts of wood parts from steering wheels to convertible top bows, drum bodies to chair parts, and plow handles to wheel felloes. They are adapted to all bending required in the average woodworking plant that may be done by machine.

The bending press is said to have been invented by a man named Gross for the purpose of bending coffin ends. Except for the fact the process has been made more productive by placing one press above the other and power is now used to close them instead of the hand wheel, press bending has not changed too much in many plants. A history of the furniture industry tells us that the steam press was first used to bend chair slats about 1870.

Most hot plate presses used for bending mount a series of steam heated plates, one above the other, hollow on the inside for the admission of steam. Each of these hollow plates is formed to the shape of the required bend, the top surface being concave and the bottom convex. The press itself is made up of a number of these plates which nest into one another as they are forced together by a hydraulic ram at the bottom which slides all plates together on a pair of round columns or strain rods.

These presses usually carry from five to seven plates to provide from four to six openings. While most presses are

arranged to bend a single part of the same curvature, some are combination types which permit bending two or more different parts in the same press. This involves a different curvature in the convex and concave surfaces of a single plate.

Steam is provided to the hollow plates through swing joint connections or flexible copper steam hose. Each press is usually designed for the use of a specific steam pressure and is fitted with a reducing valve set for that amount. There is some danger in using steam at high pressures in the plates, other than its effect on the stock, as extreme high temperatures, from 275 to 300 degrees F., may warp the plates. If pressure used is too low, trouble is likely to result from excessive condensation which will interfere with efficient heating until blown out. Most press operators seem to feel that steam pressures between 30 and 60 p.s.i. will prevent too much condensation and will not warp the plates.

These presses also provide locking devices for the plates to permit each plate to be loaded, pressed into the required bend, and locked so the pressure on the hydraulic piston can be released and the next plate filled in progression to the bottom plate. The bending stock is pressed into shape by the plates under hydraulic pressure of at least 100 p.s.i. Excess moisture is driven from the wood by the pressure and heat of the plates to reduce its final moisture content on removal from the press to from 6% to 8% in most cases.

Although mild bends are often made without the use of pans or end pressure devices, most press bending is done with pans so stock and pan bend together when the plates begin to close and the wood fibers on the inside of the bend are forced into compression.

Back bow of this Windsor chair was hand bent on a metal form with a retaining bending strap on the outer face to prevent breakage.

The ordinary bending pans have cleats across their ends with just enough room between them to receive the stock with an easy push fit. This stock should be dressed on all surfaces, accurately cut to a uniform length, properly conditioned, and of sufficient number to fill each bending pan when laid in it.

Special pans are equipped with adjustable pressure bars which may be manipulated by hand screws to distribute end pressure equally and make required adjustment for the length of the stock, thus restricting any tendency to splinter and break. Just the proper amount of end pressure must be applied to avoid crushing at the ends and breakage in tension. Since conditions vary both as to equipment and creep of the stock, this can only be determined by actual experience and observation.

Many press operators observe the added precaution of providing the clamping of side-screws during the press

Both the comb of the Windsor desk chair and the back of the Captain's chair shown here were bent in the hot plate press at the Heywood-Wakefield plant. The bent arm rail was bent on a straight press bender.

operation to hold the stock straight and to prevent twisting from end pressure. A pneumatic device used in a chair plant to hold backposts straight in the press features a clamp attached to the device which fits into a clamp holder on the press. A spring withdraws the piston when air pressure on the piston is released. Four clamping devices are applied and steady pressure holds the backposts straight during the time in the press.

Bent stock may remain in the press anywhere from 15 minutes to 2 hours, depending upon the original moisture content, dimension, wood species and nature of the bend made. Stock that is bent dry naturally will not remain as long as that which has been softening by steaming or boiling, as there may be an original moisture content difference of as much as 20%.

Press bending generally has advanced more than any other phase of wood bending. In many plants it has become a controlled, scientific operation in which temperature and moisture conditions are controlled and steam pressures and plate temperatures are frequently checked. Faults which were formerly quite common, such as scorched wood surfaces or over-dry bends, are kept at a minimum.

The process of drying and setting or fixing the bend is one of the most important factors in the bending operation. Careful bending with proper attention to conditioning and pressure requirements will go for naught due to improper drying methods. Drying is done to regain the stiffness of the wood lost in the softening process and to set the bend in a permanent shape of the form to which it was bent.

Bent wood has a natural violent reaction to heat and moisture. It has a tendency to bend still more in its inclined position as it becomes drier or else to straighten out as moisture is absorbed. This would seem to indicate that controlled temperature and humidity are required for proper drying. In many plants, however, you will find bent parts dried regularly at temperatures of 140 to 160 degrees F. with absolutely no control of relative humidity. Other plants merely set the loaded forms aside to dry as they will in a room which is alternately hot and cold with no fixed relative humidity.

Just as in kiln drying of lumber various wood species require different drying schedules. Some woods, such as ash and beech, may be dried at temperatures from 140 to 160 degrees F. without d a m a g e w h i l e oak bends treated at the same temperatures may check, caseharden and honeycomb. Bent wood drying should be pointed to an equilibrium moisture content to prevent change of shape during subsequent machining operations. Under normal controlled drying conditions bent parts dried in the strap on the form can be

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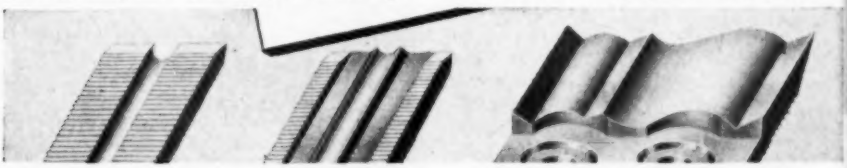

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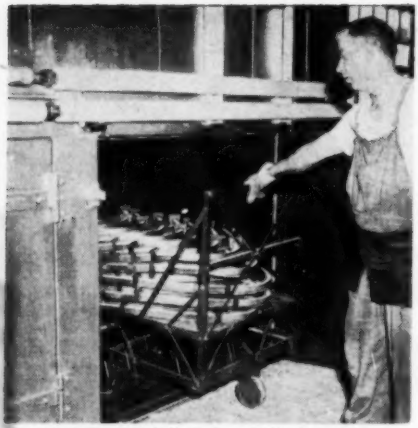


Courtesy R. C. Mahon Co., Detroit.

Truckloads of steam bent stock ready for loading into Mahon multi-batch oven for drying. All of these parts are hand bent and display a wide variety of bent forms.

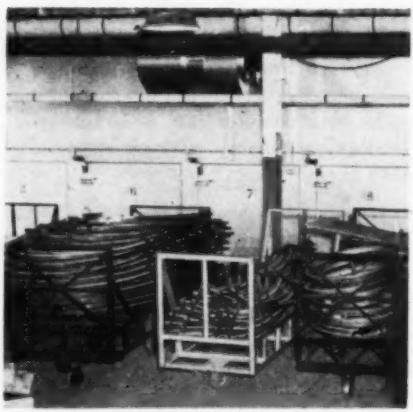
adequately dried and the bend set in 24 hours.

Drying and setting the bend are not the same thing. A bend may be set by cooling sufficiently to remove the strap an hour or two after bending, but it must be dried to attain any degree of permanence. If the straps have been removed, it is seldom safe to dry the bend at a temperature of much over 100 degrees F. even if it is tied at the ends. If it is not tied, the bend will have a tendency to straighten out. If it is tied, it is quite likely to fracture.

Since bends of a large radius have a natural tendency to straighten when freed from restraint, it is common practice to make these bends to a somewhat smaller radius to allow for subsequent straightening. Bends of a very small radius have the opposite tendency and pull inward due to natural shrinkages which occur in drying. In most cases the ends will pull out sufficiently to permit accurate fitting and no corrective bending practice is used except to dry the bend to the proper moisture content.

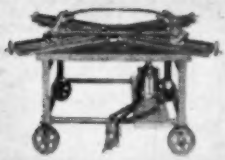
Bending failures are caused chiefly by poor selection or seasoning of bending stock, poor machining, too much or too little softening, too much or too little end pressure, and improper drying methods. The extent of their occurrence may be best appreciated by a report made of a lot of American dining chair rims. Of the original 120 pieces bent, 25 were broken beyond repair, 75 required some sort of repair, such as gluing slivers and dressing off buckles and wrinkles, and 20 were judged passable. This was not regarded as at all unusual, merely an average run.

Basic types of bending failures are usually classified as: tensile—usually associated with cross grain or due to lack of sufficient end pressure; compressive—due to wood being compressed beyond its limits (as woods of poor bending quality), surface checks or other deformations on concave face



Courtesy R. C. Mahon Co., Detroit.

Bent stock is handled in and out of a multi-batch drying oven on trucks with forms stacked to permit good circulation for quick and thorough drying to permanent shape.



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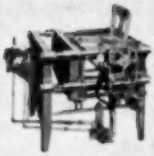

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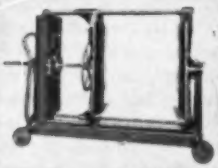

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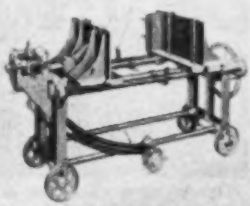

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of bend to cause shear failures, buckling of narrow pieces laterally, and various irregularity of structure to set up a concentration of stress.

Splintering is the most common type of failure and usually occurs on the covex side of the bend. This is generally caused by insufficient support of the strap to the outside of the bend. Wrinkling or buckling on the concave side of the bend is the usual result of localized compression and occurs more frequently in the lighter wood species and when bending stock of small dimension. Some breakage can be traced to steaming the bending life out of the wood but much so-called brash stock is due to incipient decay or rot in the stock which was not discovered before steaming and bending.

Bending losses are still quite large and to a great extent preventable. There is need for more accurate information of a definite nature on proper bending techniques and more research for improved conditioning methods and bending equipment. This will be forthcoming only if there is sufficient demand to warrant it and enough skilled workmen who can use it to good advantage.

What is needed is an accurate enumeration, study and explanation of the numerous factors and variables involved in wood bending. Many persons in the woodworking industry have specialized bending information which should be made available to some central organization or clearing house for proper study and coordination to hasten progress in studying bending problems and to prevent duplication of research. The tools are readily available, all that is needed is the material and cooperation.

Many seem to be of the opinion that wood bending is on the way out, is be-

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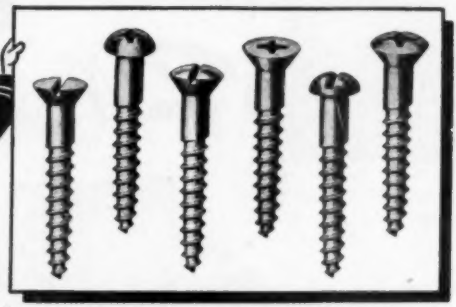

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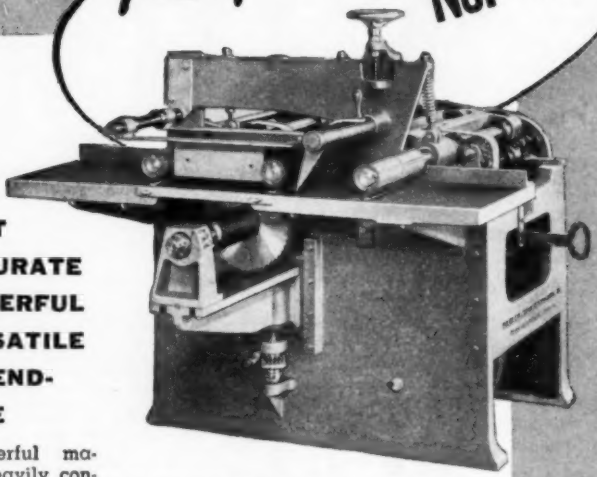

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What is *COLLAPSE?*

How To Prevent it in Drying Wood

By Harry D. Tiemann

MUCH of the honeycombing and distortion and "washboarding" which occurs in the kiln drying of lumber from the green condition is due to a phenomenon quite distinct from that of ordinary shrinkage. Although it has been observed for many years, the trouble has wrongly been ascribed to "abnormal" shrinkage. It is most common in such woods as western red cedar, "sinker" redwood, eucalyptus, southern swamp oaks, plain red gum, aspen, and walnut. In fact it occurs in most impervious hardwoods to a greater or less extent, if they contain large quantities of water.

It never occurs in very pervious material or in sapwood, for reasons to be explained later. (See Fig. 4, No. 10.) In some species, notably western red cedar (see Fig. 11), it occurs even in air-drying, but more often at higher temperatures which soften and weaken the fibers. Collapse is sometimes so severe as to render the dried wood worthless. It may cause either severe internal "hollow horning," as shown in Fig. 5 or on the other hand the surface of the timber may sink inwards, like a wash board, in groves, or the shape become greatly distorted as shown in the piece of blue gum eucalyptus board, Figs. 2, 3, and the 3-inch square stick Fig. 4, No. 3.

Phenomenon of Collapse

Prior to the year 1912 the phenomenon of collapse was unknown as distinct from shrinkage. During the winter of 1912-13, I was attempting to kiln dry California blue gum (eucalyptus globulus) in a waterspray humidity regulated dry kiln built for the purpose, at Berkely. Mr. H. E. McKenzie assisting in the experiments, called my attention to a peculiar behavior of the stickers used for the piles of eucalyptus lumber in the kiln. These small stickers, which were sawn from the same material as the boards, had caved inward in a most astonishing manner. It was soon discovered that the boards themselves behaved in a similar manner. Edge-grain lumber "washboarded" to such an extent that only a ¼ inch thick plaque was recoverable from one inch boards. Flat-grain boards warped to such an extent as to be utterly useless. Where the stickers held them from warping, they opened up in cracks, and between stickers they caved in and cupped. Never had we seen wood behave in this way before.

Out of this experience I developed the water-tension theory of the cause of collapse, and also a means of restoring the lumber by a final saturate steaming treatment at above 180° F temperature. This theory was first published in "The Lumber World Review" in January, 1915.

Some five years later two timber manufacturers, J. and E. Grant, of

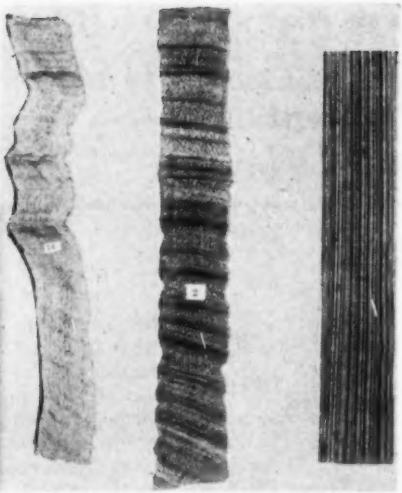

Fig. 1. (Left) Section of an inch thick board of western red cedar, collapse in air drying. This may be restored, at least partially, by the steaming treatment, since there is no rupture.
Fig. 2. (Center) Section of a blue gum edge-grain board shown in Fig. 3, which "washboarded." Note that the early wood of the rings collapsed more than the denser late wood.
Fig. 3 (Right) Washboarding in an edge-grain 1 x 6 inch board of blue gum. A cross section of the board is shown in Fig. 2.

Victoria, Australia, discovered independently a practical means of restoring collapsed lumber, mountain ash and messmate (both eucalypts) by high temperature steaming before removal from the dry kiln.

Honeycombing

Honeycombing or hollowhorning, so common in the drying of dense hardwoods, was formerly thought to be caused by severe casehardening (tension-set) of the outer surface, followed by shrinkage of the interior. The tension-stress thus produced internally was supposed to rupture the fibers across the grain, chiefly along the medullary rays; especially if the temperature were too high so as to weaken the damp wood; the drying of the surface having previously produced a squeeze and compression-set of the wet interior.

Reasoning logically it is not clear how this could cause honeycombing. When the wood first starts to dry, the wet interior retards the surface from shrinking, so that it must either check or take on a tension-set and harden due to drying. Consider that the strength is sufficient to prevent the surface from checking. The hardened shell will then be too large for normal shrinkage. Next let the interior dry. It will in turn be prevented from shrinking its normal amount by the too-big outer shell. Therefore it should tend to rupture in tension forming honeycombs. Sounds reasonable at first thought—but herein lies the rub.

If the outer shell were strong enough to resist the tension without checking due to its drying in the first place, why should the inside subsequently check when it dries when resisted from shrinking by the casehardened shell? For the differential in its shrinkage compared to that of the shell must always be less than was the original differential in shrinkage between the shell and the wet interior, for the reason that the dimension of the whole cross-section is now less than it was at the start.

In other words; the inside should be able to withstand the stress of shrinkage just as well as the outside did at the start. It is therefore difficult to see how honeycombing could be produced by casehardening alone, except where the inner fibers are weakened by too high a temperature while they are still above the fiber-saturation point. Therefore to avoid this cause of honeycombing the kiln temperature should not be greatly raised until all

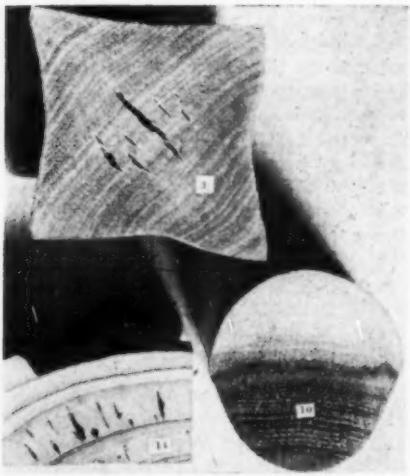

Fig. 4. Three forms of collapse: No. 3—Section of a 3-inch square of eucalyptus. Honeycombing and distortion produced by collapse. No. 10—Section of a hickory wagon wheel spoke, showing difference between behavior of heartwood and sapwood. It was originally 2¼ inches in diameter. No. 14—Ring collapse in fir in the living tree.

of the free-water has departed from the center; i.e. until the center has dried below the fiber-saturation point.

If surface checking has taken place, however, such checks may develop into honeycombs due to wedge-action. But that is another story, about "bottle necked checks," not to be gone into now.

Collapse Is the Cause of Most Honeycombing

Long experience leads me to ascribe the cause of such defects mainly to collapse of the cells during the removal of the free-water, rather than to casehardening alone. But casehardening may be a contributing factor by forming a hard resistant shell. Frequently if the casehardening is not severe or is absent, honeycombing may not occur but the surface may cave in instead. This is very common, square sticks becoming diamond-shaped and edge-grain boards taking on a washboard appearance as illustrated in Fig. 4, No. 3 and in Fig. 2.

That these effects are not due to ordinary shrinkage is shown by the fact that collapse takes place only above the f.s.p. whereas shrinkage occurs only below. Also because the spring wood of the annual rings distorts more than the denser summer wood. If the effects were due to shrinkage alone the reverse would be the case. Collapse generally occurs in the tangential direction.

What Is Collapse?

Just what is collapse? Briefly it is a drawing together of the walls of the minute cells of the wood during removal of the free-water contained in their lumina, somewhat in effect as when air is sucked out of a rubber tube. But the force which draws the walls together is not that of atmospheric pres-

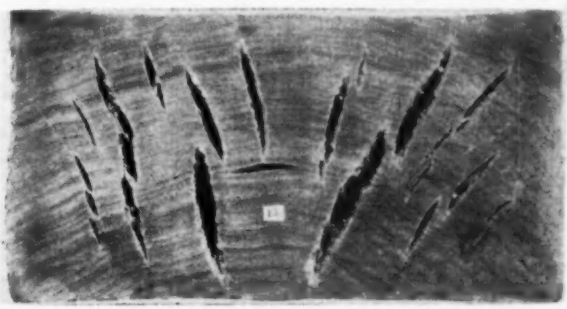

Fig. 5. Hollowhorning of black walnut due to collapse.

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sure against a vacuum alone, as some have assumed, but the tension of thin columns or films of water as evaporation takes place from contiguous minisci. When the cell walls are so impervious that the pores in them are so small as to be invisible even under the microscope this tension force may rise to as much as ten or even a hundred atmospheres. It is in fact of the same nature as that which draws the water up to the tops of tall trees[1]. Atmospheric pressure alone could not force the water up more than about 34 feet; but it rises over 300 feet in many trees!

Frequently collapse may be so complete that the lumina are entirely obliterated, and the region in which it occurs appears as solid wood substance. Collapse can occur only in cells which are completely full of water and in which the walls consist of a nearly impervious membrane, one in which the largest interstices are near the limit of visibility by the light microscope, or sub-microscopic in size.

If any opening exists large enough so that a water film mimiscus across the opening cannot support a tension in the water great enough to draw the walls together, that cell cannot collapse[2]. That is the reason why sapwood and some heartwood in which the cell walls are quite pervious, do not collapse. An example of this is shown in Fig. 4, No. 10, which is a section of a dry hickory wagon spoke originally 2¼ inches in diameter. Note that the heartwood portion has collapsed, whereas in the sapwood portion only ordinary shrinkage has taken place.

Collapse differs essentially from shrinkage in that it occurs above the

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1 See "Wood Technology," by Tiemann, 3rd ed., page 33. (Pitman Pub. Corp., N. Y.)

2 A pore .00011 inch in diameter can withstand a tension of one atmosphere. In general the pores must be smaller than this to cause collapse; near the limit of visibility in the light microscope.

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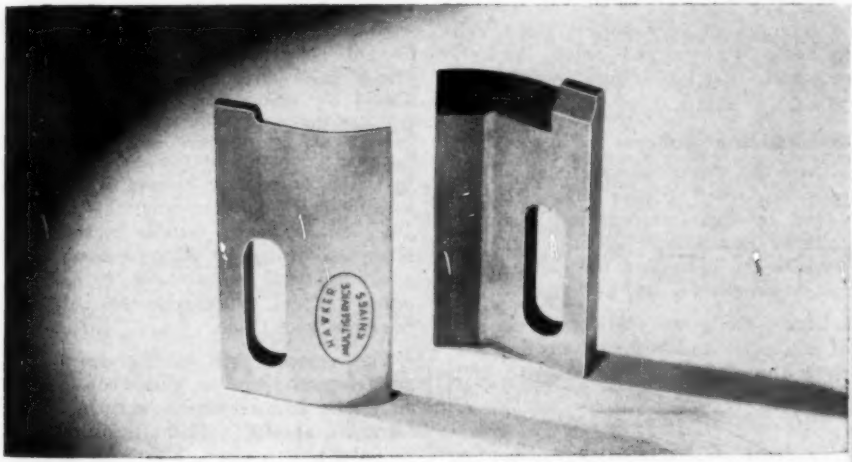

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f.s.p. during removal of the free-water, whereas shrinkage cannot occur until the fibers have dried below the f.s.p. These are the reasons why collapse is so common in very impervious woods as some western red cedar, "sinker" redwood, plain red gum, eucalyptus, etc.

Restoration of Collapse

Once the water has passed out of the cells, and their shapes have been restored by high temperature steaming, collapse cannot occur again in redrying, because the lumina of the cells are no longer completely full of water.

I have made many photomicrographs of collapsed and restored wood which show the shapes of the collapsed cells clearly, and the same cells after recovery by steaming.

It should be noted that a squeezing and distortion of the cells, outwardly resembling collapse, may be produced by external pressure; and even by ordinary shrinkage of neighboring or surrounding portions of the wood. This form of distortion can be distinguished under the microscope from that produced by water-tension discussed in this article.

Some woods are so prone to collapse, that it is practically useless to attempt to kiln dry them free from this defect. They can, however, usually be restored after collapsing by high temperature steaming; and as already explained, when redried a second time, collapse does not take place.

The answer then to the drying of such woods is to let them collapse if they will, then restore them by saturate steaming at 180° to 200° F before removal from the kiln. The best time to

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apply the treatment is when the moisture content is around 18 percent. It is of course essential that no honeycombing or checking has occured during the first drying. The surface may have sunk in causing washboarding or diamonding with impunity, provided no rupture has taken place. This means that the surface must not be permitted to caseharden severely, and so must be kept soft by high humidity until the free-water has gone from the cell lumina.

Collapse in Living Trees

Some forms of collapse are non-recoverable. This is the case with ring collapse sometimes occuring in the living trees, without any drying. An example of this is shown in Fig. 4, No. 14, which is a section of Douglas fir, collapsed in the tree. I have observed it also in spruce, aspen and cherry. It is probably caused by the sap tension when, for some reason, the particular fibers were unduly soft when the ring was new.

The significance of collapse has not been sufficiently appreciated in this country. It is much more common than has been realized, and is generally the cause of what has been termed "abnormal" shrinkage. In Australia its importance is now well recognized, and the method of restoration by steaming is commercial practice. It should be better understood in this country. A more complete discussion of the subject is given in my recent book, "Wood Technology," 1951, (Pitman Pub. Corp. N. Y.).

The End

The diligent fostering of a candid habit of mind, even in trifles, is a matter of high moment both to character and opinions. — **Howson.**

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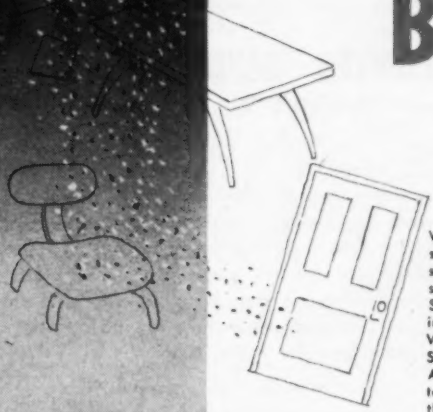

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COTTONWOOD

BY NED BAILEY

"Little of all we value here
Wakes on the morn of its hundreth year
Without both feeling and looking queer.
In fact, there's nothing that keeps its youth,
So far as I know, but a tree and truth."
Oliver Wendell Holmes

I OFTEN think of the sentiment so well expressed by Mr. Holmes when I've been doing the research work required to prepare these articles on wood—to me, trees. They all seem to be so much a part of our very existence —each with its own personality and, generally speaking, they all are so ageless. Each spring they seem so fresh and new and young in their new foliage, even the evergreens seem young again, youthful and true.

The cottonwood is of ancient origin as are many of the trees on the North American continent and its botanical name Populus deltoides refers to an early Roman expression "arbor populi," the people's tree. Of some 25 species of Populus throughout the world, 11 are found in North America. Of these deltoides, the name no doubt refers to its delta-shaped leaves, is the most important eastern representative, and the name eastern cottonwood results from that fact.

The west coast representative of the species is called Populus trichocarpa or black cottonwood. The west coast branch of the family makes up in size of the individual trees what it lacks in numbers. Some black cottonwoods have been found in the Puget sound basin and thereabouts that were 175 to 225 feet high and seven to eight feet in diameter. However, the average height is closer to 80 to 125 feet and three to four feet in diameter. These latter dimensions are about right for the eastern cottonwood. The most important producing states for the black species are Washington, Oregon and western Montana, with Oregon way out in front. Some 700 million board feet are said to be standing in the general area with an average annual cut of about 7 million board feet. Much of the west coast variety is made into barrels and boxes for fruit and vegetable containers while large logs of the best grown trees are used for the clear, wide lumber this tree provides.

The cottonwood flowers appear in March or April, before the leaves un-

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fold, in three to five inch drooping catkins. By May, the more loosely flowered pistillate catkins are six to eleven inches long with scattered, pointed capsules which expell the tiny, fragile seeds whose attached fibers of fluffy white down carry them long distances. A few hours must bring them to some place of exposed mineral soil such as that on recently flooded banks and river islands or their vitality is lost. Cottonwood also reproduces from root sprouts, stumps and cuttings. This tree is remarkable for its rapid growth during it's first 40 years. In fact, trees have been known to grow four to five feet in height each year for the first 25 years with diameters increasing two-thirds of an inch a year in a like period. Others have been known to reach a height of 100 feet in 15 years. The wood is of varied shades of brown with a thick, white margin of sapwood. Devoid of taste or odor, the close grained, porous wood is easy to work but is weak, soft, warps badly in seasoning and has a dull luster.

According to a book published about ten years ago by Southern Hardwood Producers, Inc., cottonwood is so named because of its cotton-like seed. Continuing to quote from this book we find that, "In early summer these small, fuzz-covered seeds blow great distances in the wind, at certain times having the appearance of a snowfall. In residential sections the 'cotton' frequently collects on window screens much to the annoyance of housewives." As the material used in this Southern Hardwood Producers book is reprinted from the "Southern Lumberman" one can see at once the fine, artistic, compassionate touch of our good friend Stanley Horn. He surely feels sorry for the housewives. The following, I hope, does not upset him too much in his solicitude.

The October '51 issue of the "Forest

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Farmer," published monthly at Valdosta, Georgia, by the Forest Farmers Association Cooperative carries a very interesting article on "Cottonwood Planting in Alluvial Bottomlands." Louis C. Maisenhelder, Delta Branch, Southern Forest Experiment station is the author. He brings out the fact that the cottonwood is America's fastest growing commercial tree. On average or better sites, in the area he refers to, a plantation will mature at 40 years of age at which time trees should average 23 inches in diameter, and contain something like 30,000 board feet of timber per acre. Today, he says such a stand would be worth $450 an acre on the stump. Mr. Maisenhelder observes that in the Mississippi river delta and the bottomland of the other large southern rivers are large acreages of vacant land that can be most quickly restored to production by planting cottonwood trees. This gentleman's suggestion is already being carried out in some of the southern states and regardless of the inconvenience to housewives in the larger residential areas we still think it is a splendid plan.

There do not seem to be the many uses for cottonwood that there are for some of the other species, but where the wood does work out satisfactorily it is exceptional. Beverage boxes, crates, shooks, trunks, plywood for unexposed parts of furniture, laundry appliances, agricultural implements and excelsior. The National Wooden Box Manufacturers Association once gave first prize in a contest between beverage manufacturers for the oldest beverage case still in use. The winner turned out to be a 33 year old beverage box made of cottonwood. Trunk manufacturers who require strength with light weight are large users of cottonwood plywood. It is an exceptionally fine wood for nail-

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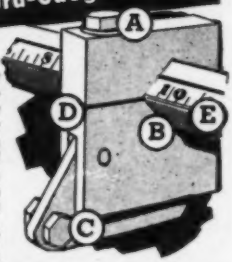

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ing purposes, having the very desirable quality of resisting splits, besides which it has good gluing properties and a fairly low shrinkage quotient.

It has been found in cutting cottonwood veneer as with several other species that better results are obtained by cold cutting the log. When preparatory heating is done it is not unusual to have the veneer surfaces come up fuzzy or fibrous when the veneer comes off the lathe from a "hot" log. Veneer is manufactured from cottonwood mainly in the southern part of the country.

Some slack barrel staves are made from cottonwood, their use being largely restricted to containers for edibles—the odorless and non-taste features being responsible for its selection. Shavings find a market as a packing material, stable and kennel bedding, home burning, insulation, wood pulp and wood flour manufacture, the last two particularly because of its light color. In wood flour its overall physical properties and low density are also determining factors. It is among the most important of the hardwoods in the manufacture of paper, the soda process being used to manufacture the cottonwood pulpwood into paper making material.

For making good excelsior, the demand for which seems to be getting less and less, cottonwood was considered one of the best. Free from odor, taste and staining action, being light in weight and color, with soft, strong resilient strands, it was ideal.

Most products made from cottonwood are such that they need no finishing. Nevertheless the wood is attractive when properly finished. The time may come when this fast growing wood because of its several natural features will be up graded in use—until then we believe the

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$450 an acre of cottonwood raised on ordinarily profitless property, regardless of what the end use might be, is a mighty good investment. Figured on the 40 year basis mentioned and with the $50 deducted for expenses to raise the value of such property, $10 a year per acre is a worthy project.

The End

HELP FOR THE EMPLOYER

Have you changed your hiring age limit? Draft and reserve calls are unquestionably affecting our labor situation. The "40 plus" worker who was finding it almost impossible to get a job is now becoming popular again. Talking to the man in charge of a state-operated employment office recently I was told they "could place men up to 60 provided they were healthy and active, preference given to those knowing a trade" and that "women from 18 years and up were finding many profitable jobs." Women getting preference in exacting and repetitive type work. Watch your labor situation. Don't get caught short.

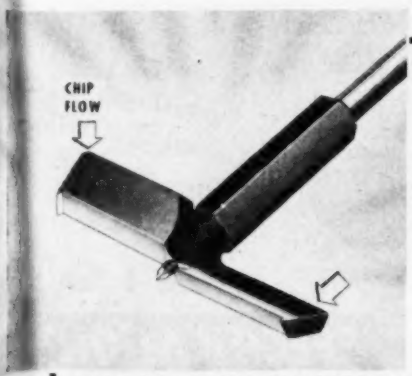
Speaking of labor, are you upgrading your employees? You may be able to work an unskilled man or woman into a skilled workers job. Keep an eye out constantly for this opportunity. It is one way of encouraging better work in the lower work brackets.

— Editor-in-chief.

Sandy: "McPherson's a cheat and I'm not playing golf wi' him again."

Andy: "How's that?"

Sandy: "Weel, how could he find his lost ball a yard frae the green when it was in my pocket all the time?"



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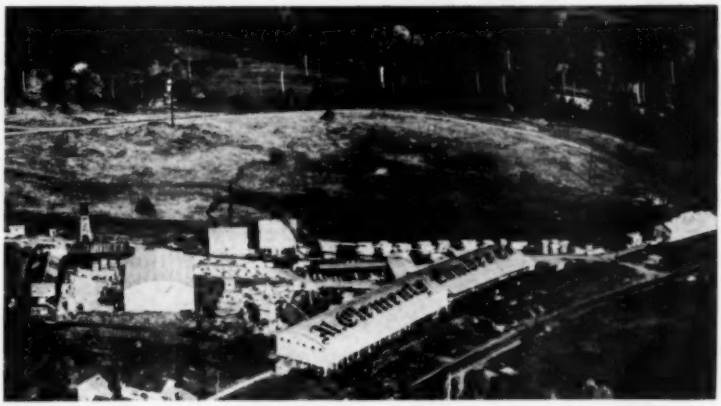

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HOT *Spraying* FINISHES

By Thomas A. Dickinson

"HOT spraying" is briefly a method of using heat to reduce the viscosity of lacquers and other thermoplastic finishing materials in order to minimize the need for solvents or thinners and to reduce the amounts of time and equipment required to produce coatings of varied thicknesses on wood and other porous surfaces.

It differs from the flame-finishing process to the extent that it involves no use of open flames and, consequently, can be used to apply a greater variety of thermoplastic coating materials. It is comparable to the steam-spraying process in terms of applicational temperatures but requires the use of compressed air in place of steam pressure (which is most satisfactory for the spraying of thermosetting materials, due to the tendencies of thermoplasts to "blush" in the presence of heated moisture).

Standard spray guns, pressure tanks, compressors, and air lines are suitable for hot-spray finishing if properly equipped with special heating accessories. Such accessories are now available as two different types, features of which can be described as follows:

(1) Air-heater type—comprises one electrical heating unit on the air line leading into a pressure tank and a second heating unit on the line that feeds a spray gun, both heating units being thermostatically controlled for consistent coating temperatures of 170° to 300° F. Accessories of this type are obtainable from Douglas Wilson & Co., Inc., 101 Park Ave., New York 17, N. Y.

(2) Circulating-heater type—comprises a cartridge-heated coil, through which a coating material is pumped to a spray gun for output temperatures in the general range noted above. Accessories of this type are obtainable from firms such as: Bede Products, Inc., 4311 Ridge Road, Cleveland 9, Ohio; Currier Company, Inc., 1490 Calzona St., Los Angeles 23, Calif.; DeVilbiss Co., Toledo, Ohio.

Special coating materials with relatively small quantities of volatile solvents are also essential to the successful application of a finish with hot spray

Shipping department at one end of the modern brick building occupied by the S. R. Hungerford Company, Memphis, Tennessee.

equipment, but these are now being produced by virtually all manufacturers of industrial finishing compounds as clear or pigmented liquids. Such liquids are a bit more expensive than conventional coating dispersions in terms of costs-per-gallon, but the material cost of a hot spray coating is lower than that of a conventional coating because relatively small quantities of thinner are lost due to evaporation as the former solidifies.

The actual ratio of solids and solvents in a hot spray coating solution, prior to application, depends on the temperatures and pressures that can be used in spraying the solution. A hypothetical case might show that where ten gallons of synthetic enamel might be thinned with two gallons of solvent for spraying at room temperature with 16 pounds of air pressure, only one gallon of thinner is needed to apply the same quantity of coating solution with 11 pounds of air pressure if the enamel is heated to 180° F. prior to spraying.

The general technique of spraying a heated coating material is essentially the same process that would be used in spraying an unheated organic finishing compound. However, a hot spray coating can be applied with much greater speed and 50% less air due to the elimination of one coat and also because heated thermoplasts have better viscosity for finishing purposes and can be applied as films with respective thicknesses of about 2.5 mils (where one mil would be the optimum thickness of a conventional organic coating film) without danger of sags, blisters, or related defects.

It is particularly interesting to note that hot spray coatings can be successfully applied without regard for the temperatures and atmospheric conditions that would ordinarily preclude the use of organic finishing solutions where no air conditioning facilities are available.

No heat is conveyed by a hot spray coating to a deposition surface because the coating particles are rapidly cooled by air as they emerge from the nozzle of a spray gun.

Solvent losses due to hot spraying are exceptionally high, being about 75% greater than the losses due to the atomization of unheated coatings, because the temperature of the hot finish-

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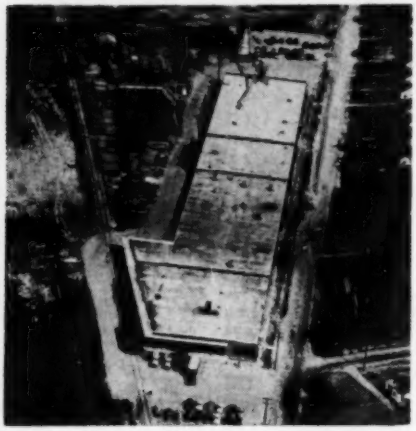
ing solution is near the boiling point of the volatile constituents when it emerges from a spray gun. This can cause difficulties if the ratio of solids and solvents is insufficient to allow coating particles to flow and adhere to a deposition surface after they are sprayed. However, such difficulties can usually be avoided by using a proved product made by a reputable manufacturer of finishes.

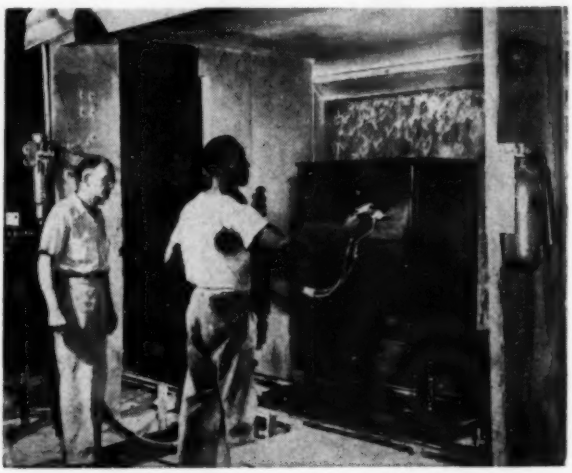


Aerial view of the Hungerford furniture plant where fine mahogany furniture is manufactured.

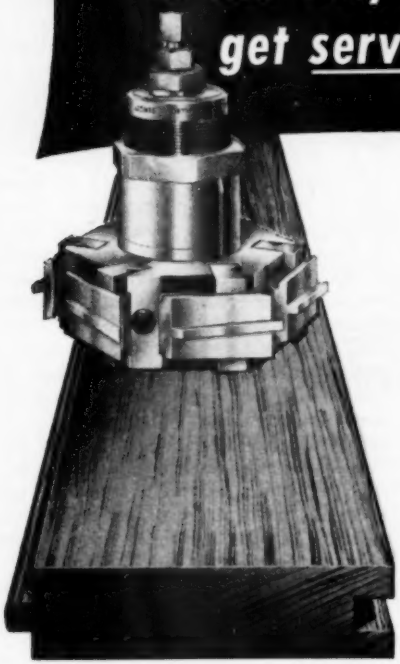
Problems should be discussed with him and he can make suggestions for solving any difficulty.

Despite high solvent losses, the actual quantities of vapors dispersed in the atmosphere as the result of hot spraying are comparatively slight—not only because smaller quantities of thinner are used in hot-spray coating materials, but because the sprayed solids in the coatings are relatively dense and will not rebound like particles sprayed in a conventional manner. This is important because it means that coating materials are conserved while the more or less toxic vapors normally inhaled by finishing personnel are greatly reduced.

Hot spray processing techniques have been extremely popular in Europe for several years. In Sweden, for instance, about 90% of all industrial lacquers are preheated for spray applications. But, despite the fact that American engineers long ago recognized the potentialities of such finishing operations, the hot-spray process at present has little more than a commercial toehold in the United States.



Hot spraying of lacquer on the conveyor line. Hungerford has used this process for over two years.



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The latter situation is no doubt due to a general belief that organic coating materials represent an unwarranted fire or explosion hazard when they are heated. It is true, of course, that virtually all resin-solvent mixtures are susceptible to combustion at temperatures exceeding 300° F. But, where lower temperatures are maintained with reliable heating accessories, the danger of combustion is lessened because (as previously explained) smaller quantities of volatile particles are dispersed in the air, where they could be ignited by a very small spark.

That is why some companies are now beginning to use hot-spray accessories in connection with electrostatic finishing operations. As the reader may recall, electrostatic finishing is the process whereby fixture-mounted guns are used to eject coating materials through a high-voltage electrical field so that the coating particles will be electromagnetically attracted to the surfaces of conveyor-grounded products—a very economical process because it can be utilized on a production basis with fully-automatic finishing equipment.

Extra quantities of thinner are usually required in coatings that will be preheated for electrostatic finishing operations in order to maintain the "wetness" of sprayed particles, since the latter must travel farther than the particles from a manually-operated gun before reaching a deposition surface. However, this cannot be regarded as a deficiency in view of the fact that the cost of drying the preheated coatings is reduced by a margin of more than 50%.

A short baking or drying interval is of course necessary to assure the complete solidification of a hot spray coating. However, this involves the use of at least 75% less time and equipment than would be required to bake or dry organic finishing materials applied in a conventional manner. This is due, of course, to the fact that there are fewer coats.

When they are completely solidified, hot spray finishes are remarkably smooth, glossy, and non-porous—due principally to the aforementioned shrinkage properties, which tend to minimize the "orange peel" appearance that has heretofore characterized a majority of spray coatings.

Savings in terms of time, materials, power costs, and rejects have been somewhat variable where hot spray finishing was done for reasons that could be cited in describing the economic advantages or disadvantages of any industrial process—such as the availability of skilled workers, the type of work that had to be done in each circumstance, and the ability of management to provide an efficient production setup. However, a recent survey discloses that the advantages of hot spraying (as compared with standard cold spraying methods) can be statistically summarized for a typical woodworking plant as follows:

(1) Material costs—about 10% to 25% lower.

(2) Labor costs—about 25% to 30% lower (due to the need for fewer strokes per coating operation, fewer sanding or polishing operations, and fewer rejects).

(3) Power costs—about 5% to 20% lower (due to the need for less compressed air, less fuel for drying or baking purposes, etc.).

Incidentally, the aforementioned Bede organization has recently adapted the principles of hot spraying to the dip coating process by developing a circulating pump-heater unit to maintain elevated temperatures in a dip tank. Reports on the successful use of the lat-

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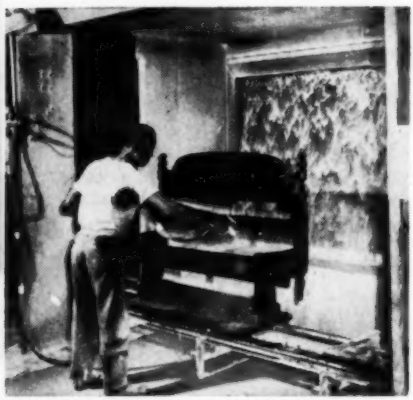
ter equipment are at this writing somewhat fragmentary and inconclusive, but



Hot spraying lacquer at the Hungerford plant.

it seems fairly likely that hot dip coating will inherit many of the advantages of hot spray finishing.

Case History

A large southern manufacturer, The S. R. Hungerford Company, has described their hot spray process and results to the editor of WOOD WORKING DIGEST as follows:

Before using hot lacquer, our production sequence in the finishing room consisted of the application of one coat each of stain, filler, shading lacquer, sanding sealer and followed with two coats of cold spray 27% solids lacquer. Each process required a drying period after application, and our finishing schedule extended over a period of some 48 hours. We investigated and started using hot spray lacquer in the fall of 1949 and were very pleased with the results immediately obtained. We cut out one of the lacquer operations and one of the drying periods completely, resulting in substantial savings in time for the S. R. Hungerford Company.

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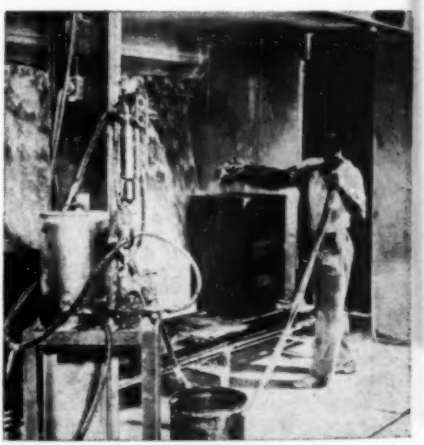
As far as the method of application goes, we use a 35% hot spray lacquer at this time in a semi-gloss sheen. It is applied through a Bede heater electrically operated, with circulating pump. We have found that where the conveyor is constant and the application is fairly steady with no pauses over one minute's time, it is possible to operate the Bede unit without circulating pump. The lacquer in the fluid hose remains hot sufficiently to permit application. This of course eliminates one hose from the gun, which makes it somewhat easier to handle. The only difficulty is that in the event the conveyor is down or a gap exists in the work on the conveyor, which means a longer period of wait than one minute, it is necessary to bleed the fluid line so that it will move hot lacquer into the gun. Normally we prefer and do use the circulating pumps.

The lacquer is applied at heat range of 160°F to 165°F at normal air and fluid pressures. We obtained a very satisfactory build at one pass through the spray booth. The application time is no longer than required for one coat



This view shows details of finishing equipment in use for the hot spray method.

of cold spray lacquer, and the coat levels out and has somewhat less orange peel than was apparent in cold spray lacquer. The application is followed with a thirty-minute flash, at which time it enters a drying room on a conveyor and dries for a period of approximately two hours at 120°F. After exit from the oven, it is air cooled for a period of thirty minutes to an hour, and rubbed.

As to the economics of the application, we can say that the material cost is somewhat higher and the coverage is somewhat less per coat than the cold spray lacquer. This is more than made up in the savings of time and labor saved in the one coat application. In addition, substantial equipment and space are saved in the finishing room.

We would not say that hot spray lacquer is fool-proof. We have had enough experiences with it to know that it has its own peculiarities. There are of course good formulations and bad formulations, depending upon the supplier, and it behooves anyone using it to thoroughly study its reaction and adaptability to their products. We do know that it has a tougher and harder film and is somewhat more difficult to rub. In addition it is susceptible to bubbling at elevated temperatures and humidity, and if not properly formulated will fail on cold check test. We were very much interested from this standpoint and have run numerous cold check tests. The formula that we are now using has safely withstood fifteen complete cycles with no evidence of failure.

The End

Too many Mortimer Snerds in the family of nations have found it pays to be ignorant. **—Ray D. Everson**

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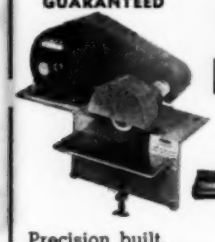

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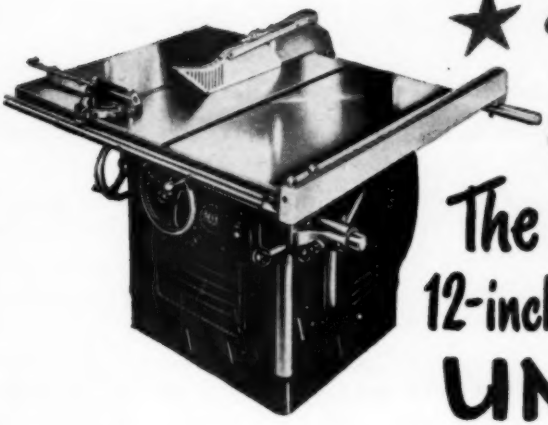

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"Let us think of these heroes when we are prone to grumble about the relatively small demands defense mobilization is making upon us here at home.

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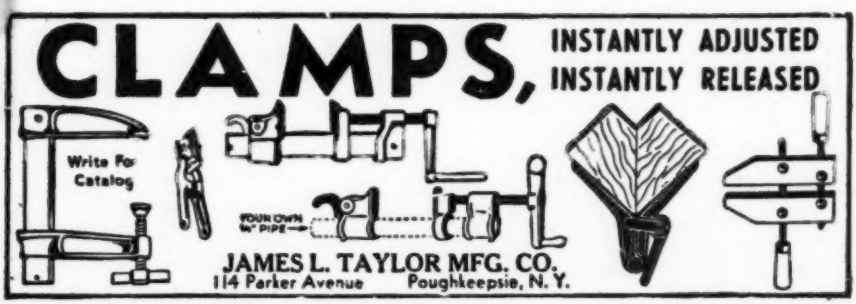
"Never before, not even in the days of World War II, have I felt as compelled as I do now to urge that we Americans bend every effort to achieve a national purpose to become strong.

"Let us never forget that this program has arisen from the horrible fact that the free, liberty-loving nations are being challenged by an enemy whose ideology, philosophy and practice are 180 degrees oposite to our own.

"The task confronting us . . . is to build our might to such a point that we shall be in no danger of losing our own sacred freedom and liberty."

Charles E. Wilson, Director of Defense Mobilization
Before The National Press Club, Washington, D. C.



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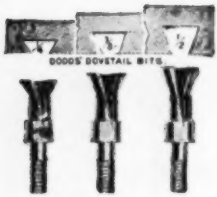

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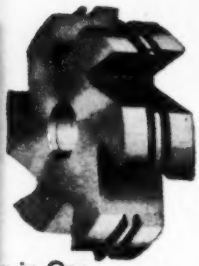

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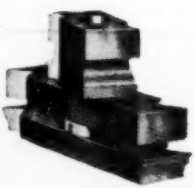
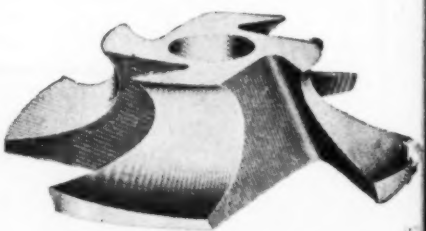


Sash Cutters



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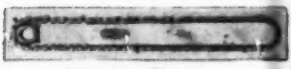

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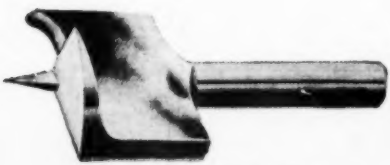

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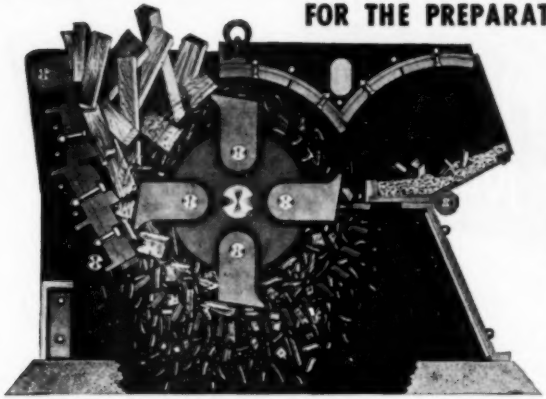

Sectional drawing of Williams "No-Nife" Hog showing how the fast revolving hammers cut the wood refuse by impact.

Williams new and improved "No-Nife" Hogs are now offered for use in all wood working plants. Experience has proven, that when properly handled, wood refuse is the cheapest fuel for all wood working plants. Therefore, the wood refuse utilized in this manner not only insures a proper fuel supply, but also provides a convenient and economical method of cleaning the refuse from the mill and disposing of it without additional expense.

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- Many sizes of "No-Nife" Hogs to choose from.
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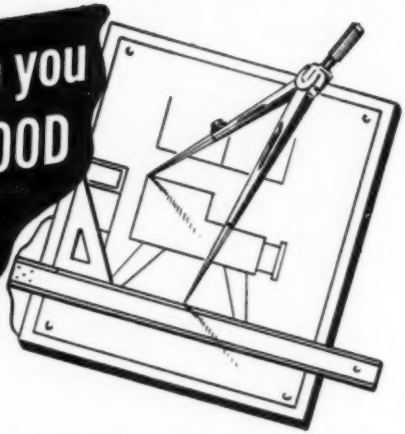

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Features . . . .

Types of Plywood
By Thomas Perry

Veneer & Plywood
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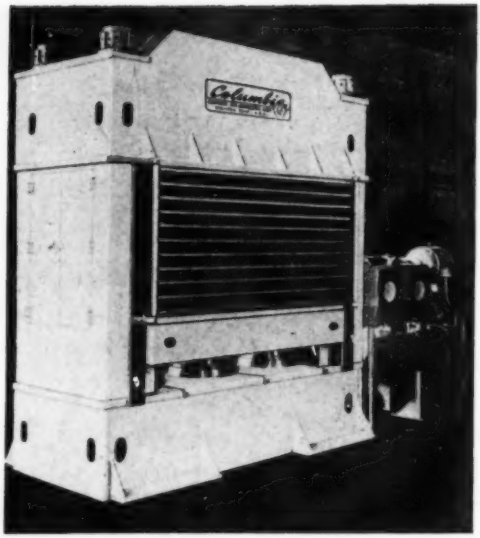

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The fast, highly-efficient hydraulic system and automatic opening feature speed operation and the unique platen design affords faster, more uniform heating for rapid, economical curing and high product quality.

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VENEER and PLYWOOD

By Ned Bailey

Part 17

DURING the last three decades veneer and plywood have gained such popularity and their use has become so varied and diverse that to attempt a complete summation of their utilization would take far more space than this whole issue of WOOD WORKING DIGEST would afford. I am therefore going to choose the most interesting to write about after this article which will be devoted to a brief listing of the more important uses of these products.

One of the contributing factors to the rapidly growing major importance of veneer and plywood comes from the introduction of materials other than conventional wood veneer as integral plys. Paper, pressed wood, fiber board, steel, aluminum, plastics, honeycomb, Kraft paper, cloth and canvas are a few. The new adhesives and fabricating machinery and impregnating materials newly discovered have been largely responsible for making these many combinations possible.

For one illustration, take the combination of Kraft paper and wood veneer. Kraft paper is stronger across the grain than thin veneer and is used to reinforce it. The paper is either used as a core, between layers of veneer, or for the outside surfaces. Such combinations are used for packing cases, mirror-backs, and cabinet partitions. Papreg and Kimpreg, phenolic-impregnated papers are also suitable facing material for both veneers and plywood. One manufacturer we know of is using a three-ply assembly, a 1/7 inch veneer core and phenolic paper faces for drawer bottoms and dust proof boards in case goods.

Pulp fiber boards such as Masonite or Celotex can be faced with veneers. Such veneers are usually pretty thin, from 1/3 to 1/60 of an inch. There are instances where it is advisable to first combine a face veneer with a high density fiber board and then glue that combination to a more porous, low density fiberboard.

The need for heat protection in radiator enclosures, covering for hot air ducts, boat and ship partitions, and doors and partitions in slow combustion construction has given rise to a big demand for veneer combined with asbestos board.

A product called Flexwood is a good example of a cloth veneer combination used largely for interior wall finish. This product consists of a thin sheet of hardwood veneer from 1/100 to 1/4 inch thick, laminated under heat and pressure with a waterproof adhesive to a coarse cotton fabric. These sheets are run through a flexing machine producing a flexible material with a hardwood surface. It can be applied to any surface, flat or curved, using a permanent adhesive much the same as wall paper is hung. Flexwood strips are made 18 to 24 inches wide and 8 to 10 feet long. Other uses of this cloth veneer combination include a special type conveyor belt, the fabric supplying the flexibility and the veneer the desired surface and stiffness. This material is also used for guards around machinery.

Another product is woven wood laminate. In this case the veneer is coated and impregnated with resin varnishes. This is cut into strips of desired width, then woven into sheets of any size. These woven sheets of veneer are then bonded with some thin stiffening material under heat and pressure. The sheets that result are flexible and can be cut with ordinary scissors. When mounted on plywood or other solid backing, these panels can be used for desk tops, card tables, bars, walls and ceilings. They have a glass smooth surface, impervious to moisture, alcohol and many common acids and they are fairly resistant to cigarette burns. Interesting designs are produced by weaving woods of different colors and grain.

Many types of metal faced plywoods are now available. One of these is a bond of wood veneer to a metal underlay. In this case, cotton cloth is fused into steel using a zinc solder. This is then bonded with phenolic resin sheets to the thin wood veneer. The feature of this product is that it has the appearance and feel of wood, yet it can be handled and machined like steel and is highly fire resistant. Another metal veneer combination is a lamination of plywood and metal wherein the plywood is covered with a metal veneer surface. Both of these products have wide acceptance in a variety of industrial uses, the latter gaining in volume over the former where tougher uses are required.

In the insulation and acoustical fields, thin wood veneers bonded to thick, lightweight cores of foamated thermoplastic resins, give promise of increased acceptance for lightweight panels and many other special uses.

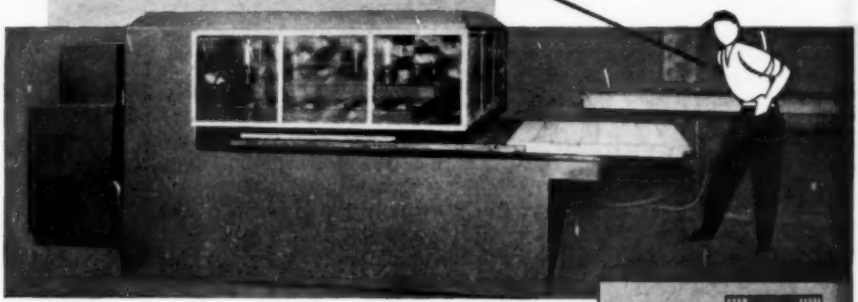
There is no greater field for the application of plywood than the construction of homes and industrial buildings. This is due largely to the advantages it has to offer over solid lumber. Here are a few: greater resistance to end checking and splitting which among other things, permits nails and screws to be driven closer to an edge than possible with solid wood; strength properties equalized along both length and width of the panel made possible by alternating the direction of grain in successive plies; shrinkage and swelling reduced and equalized; ease of cutting into any desired shape; lightness for ease of handling; can be conveniently bent for use on curved surfaces; comes in large sizes cut if required to exact dimensions; adaptability for sheathing and broad range of decorative effects possible. Its use for concrete forms, particularly Douglas fir plywood is quite general all the way from small forms to gigantic projects like dams, bridges and skyscrapers. By using this wood these forms can be revised from time to time.

Not only can plywood be used inside for floors, walls and ceilings and for decorative purposes but it can be made

ONE OPERATOR
DOES THE ENTIRE JOB

- handles the glue spreading
- lays up the stock
- removes finished work
- stacks it on a truck

PLYCOR
ONE-MAN
Roto-gluer



The Plycor One-Man Roto-gluer offers the most practical and economical method of edgegluing for the smaller manufacturer. One man with a Roto-gluer can produce 3000 to 6000 sq. ft. of glued-up stock per day. And look at the different types of work it does:

- **Produces glued-up panels, lumber cores, table tops, sash and door stock, and other similar work**
- **Glues hardwood panels for solid furniture with exposed joints**
- **Will do lumber core banding and veneer core banding**
- **Can be equipped with interchangeable electrodes for panel-to-frame gluing and other sub-assembly work**

There's no wasted time and effort with a Roto-gluer. It's loaded and unloaded simultaneously. The operator hardly steps out of his tracks. Every motion is a productive motion. Result . . . one man produces as much as two and usually three men using ordinary clamp carrier methods . . . flatter, better panels . . . better glue joints . . . more sq. ft. per man-hour . . . at lowest cost.

The Roto-gluer is simple and easy to operate. It's equipped with finger-tip control . . . automatic timing . . . air operated top and side pressure cylinders . . . and high frequency electronic curing (Westinghouse 5 K.W. or 10 K.W. generator). And it's engineered and built for years of trouble-free service.

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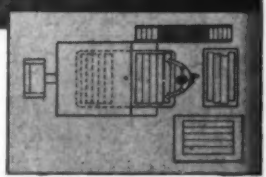
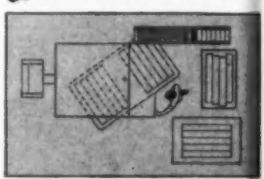
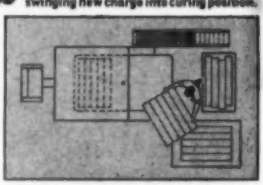


a While one charge is in curing position, operator lays up the next charge.



b When curing cycle is completed, operator shifts valve. PivoTable revolves, swinging new charge into curing position.



c Finished panel is delivered directly in front of operator who stacks it onto truck and then lays up the next charge.

PLYCOR COMPANY

Division of **EARLE HART WOODWORKING MACHINE COMPANY**

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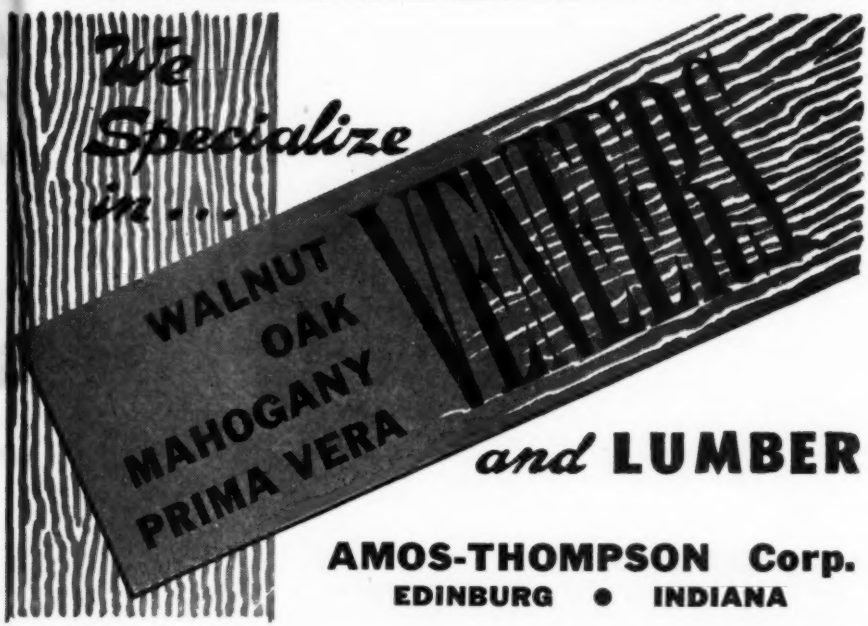
into "built-ins," shelves, nooks, partitions and attic and basement finishing. Several concerns making prefabricated farm and residence buildings use plywood throughout their buildings.

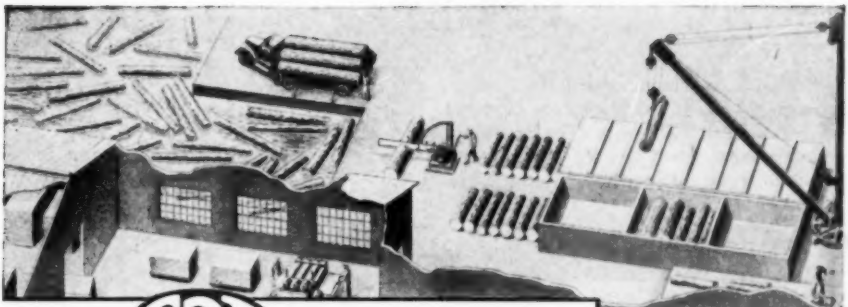
Furniture and cabinetwork as a general classification takes second place in square foot volume of plywood production. The greater part of this plywood that meets the eye in the finished article is covered at least on one side with face veneer. Here again many of the good points heretofore mentioned influence the selection of plywood and the fact that it can be had in large panels or custom cut and faced with any desired veneer of precious wood or particular design put it way out in front over solid wood.

The lightweight and comparatively great strength make plywood a most desirable material in the construction of truck bodies and boats. Metal-faced it is used for streamlined trains. Covered with heat and acid resistant resins, plywood table tops, office equipment, restaurant counters and wall paneling are coming into greater use.

Water resistant glues have increased the demand and broadened the use of plywood as has the insect and fungi repellent impregnating materials that can be added to plywood. Boats are built of plywood, smaller ones use it inside and out and large liners for interior finish.

Automobile, airplane and other manufacturers of large metal or metal and wood products when working out new model designs make what are called mock-up models. These in most instances are made of plywood. First, the legitimate stage and then the movies use large quantities of plywood in building scenery. Of course, the auto and airplane industries use plywood





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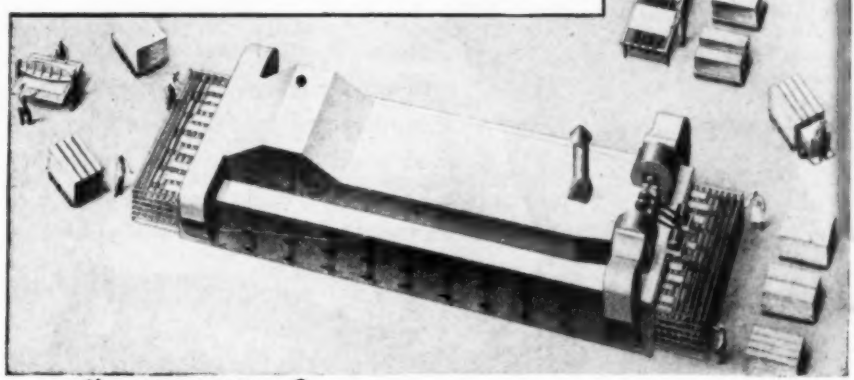
Efficient production of veneer and plywood depends not only upon the performance of each individual machine, but also upon the performance of each machine with respect to other machines in the production line and to the overall plant layout.

The elimination of bottlenecks in your production line is essential for efficient production.

For the biggest part of a century, Coe has continually developed new equipment and studied overall production problems for various types of veneer plants.

Coe engineers welcome the opportunity of discussing any problems whether large or small pertaining to the production of veneer.



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and veneer in many parts of their products.

Millwork, such as sash and doors, is largely made of plywood, particularly the flush type door. The traveling public use plywood trunks and luggage. Caskets are another item. Boxes, large and small, packing cases all utilize plywood and veneer is used for fruit and vegetable baskets and boxes. Plywood bottle boxes are gradually taking over the field for that type of container. Toys, woodenware, novelties, bird houses, ping-pong table tops, patterns, bulletin boards and signs, educational and industrial exhibits and many more items are made of plywood with new ones being added every day. In future articles we will describe both old and new uses with emphasis on the new.

The End

The empty vessel makes the greatest sound. — **Shakespeare.**

FAST-SETTING COMPOUND

Anchor bolts for permanently fastening machinery, hand rails, or equipment of any type to concrete, can now be set easily and quickly by using Por-Rok quick setting cement, we are told. It is made by the Hallemite Manufacturing Co., 2446 W. 25th St., Cleveland 13, Ohio.

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No, Lulu, a meadow lark isn't a date with a farmer. — **Anon.**

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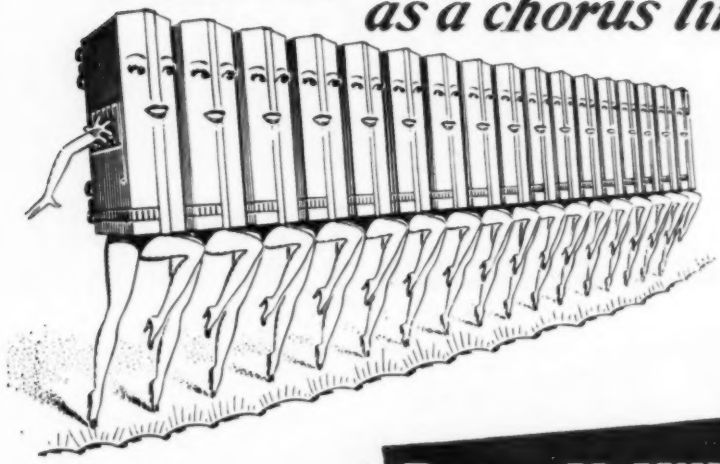

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Standard Operating Procedure at Bacon-McMillan builds a plus into gum and bay poplar veneers that assures a constant high standard of quality. From selection of logs to shipping platform there's a rigid checklist allowing no compromise. It has to be the best to earn an okay.

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QUALITY VENEERS SINCE 1910

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TYPES OF PLYWOOD

Part 5

PLYWOOD FOR PACKAGING

By Thomas D. Perry

THE records of the early use of veneer and plywood for packaging are obscure. The use of thin veneers to display the beauty of wood dates back many centuries, but utilitarian applications did not appear until after the development of the rotary veneer lathe about 1850. This process substantially reduced the cost of cutting veneer, but plywood with alternately crossed layers, as it is known today, was not of commerical importance until about 1875. The use of thin veneer for baskets, berry boxes and fruit packages was undoubtedly the earliest type of lightweight wood packaging and probably dates back to around 1865 to 1875. However, it was not until about 1900 to 1910, that plywood shooks began to be a real factor in shipping containers. The distributed strength of cross laid plywood constructions, with their amazing resistance to splitting, soon made plywood an important packaging material, and encouraged the use of much larger boxes of lighter weight than had been possible, either with single ply veneer, or with solid lumber.

Satisfactory and strong corner joints could be secured by nailing or stapling narrow strips of lumber, called cleats, on the edges of the plywood, and similar stiffners were used for areas that might bulge, as shown in Fig. 3. The typical nailing of a corner joint, between fully cleated plywood shooks is shown in Fig. 1.

The use of cleated plywood box shooks, by 1920, had attained definite industrial importance and standard specifications had been adopted and published by the National Association of Box Manufacturers. Plywood shooks are a highly competitive product, definitely stronger than the cheaper corrugated paper containers, and much lighter than solid wooden boxes. Hence the quality requirements of plywood shooks permit the use of grades of veneer, of glues and workmanship which are less exacting than for normal plywood.

Making Plywood Shooks

Plywood shooks are made in fully integrated factories, starting with the log or bolt, including veneer cutting, gluing into plywood, trimming edges, sawing cleats, cleat nailing and bundling. Such shooks are shipped K.D., to economize space in transportation and in storage before use. Economy requires that shook factories be located in the log supply area. Theoretically plywood shooks are a quick-turn-over product; requiring, as a minimum, one day for cutting and drying veneer, another day for gluing and clamping, with a third day for trimming to size, stapling cleats and bundling for shipment. Hence factory storage requirements are limited to the accumulation of shipments and some process stock, where material for large sizes may be stored while orders for small sizes are being made.

Since quality requirements are mod-

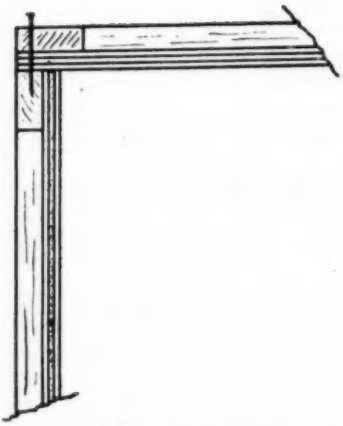

Fig. 1. Nailed corner between cleated plywood shooks.

erate, the veneer lathes may be run much faster than for high quality plywood, often up to 60 r.p.m. The logs or bolts are usually of relatively small diameters, to permit substantial overruns on log scale and to hold the cost down. Veneer is usually clipped to net sizes, plus waste allowance, half, third and quarter sizes being allowed in centers and backs. Dry clipping and taped joints are seldom required. Splits and sound knots are permissable, when they do not materially weaken the 3-ply construction. Veneers are usually cut for 3-ply shook thicknesses of 3/24", 3/20", 3/16" and sometimes 3/12" for large cases. Veneer drying problems are relatively simple, since all veneers are thin and drying to 15% moisture content is usually sufficient.

Except for export shipment, moisture resistance in the glue line is seldom a criteria, and glues are usually of the starch or soybean types, producing a strong, but not necessarily durable joint. The use of silicate of soda glues is now relatively rare, although at one time they were important in the shook program. While cassava starch makes the best glue, corn and potato starch are widely used.

Assembled plywood is kept under pressure in clamps over-night, and after unclamping, is broken into bundles 1" to 1½" thick for trimming. The cleating is preferably on automatic stapling machines, although automatic nailers still produce strong cleating. The best side of the plywood is selected for the exterior of the package. The staples are driven at a 45° angle with the grain, to give maximum holding power, as is shown in Fig. 2. Some shooks are wirebound into packages, with extended loops provided for quick assembly at time of use, eliminating most of the final nailing, and simplifying re-use.

Types of Cleating

Many types of cleating have been devised, and the principal standard constructions are shown in Fig. 3. with the technical designations indicated in the caption.

While other types of special cleating have been developed, preference is given to the standard types, which offer a wide selection, dependent on the type of service required. Extra cleats or blocks may be located as needed for

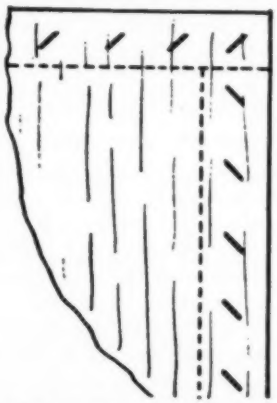

Fig. 2. Staples driven at 45° angles.

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APMI

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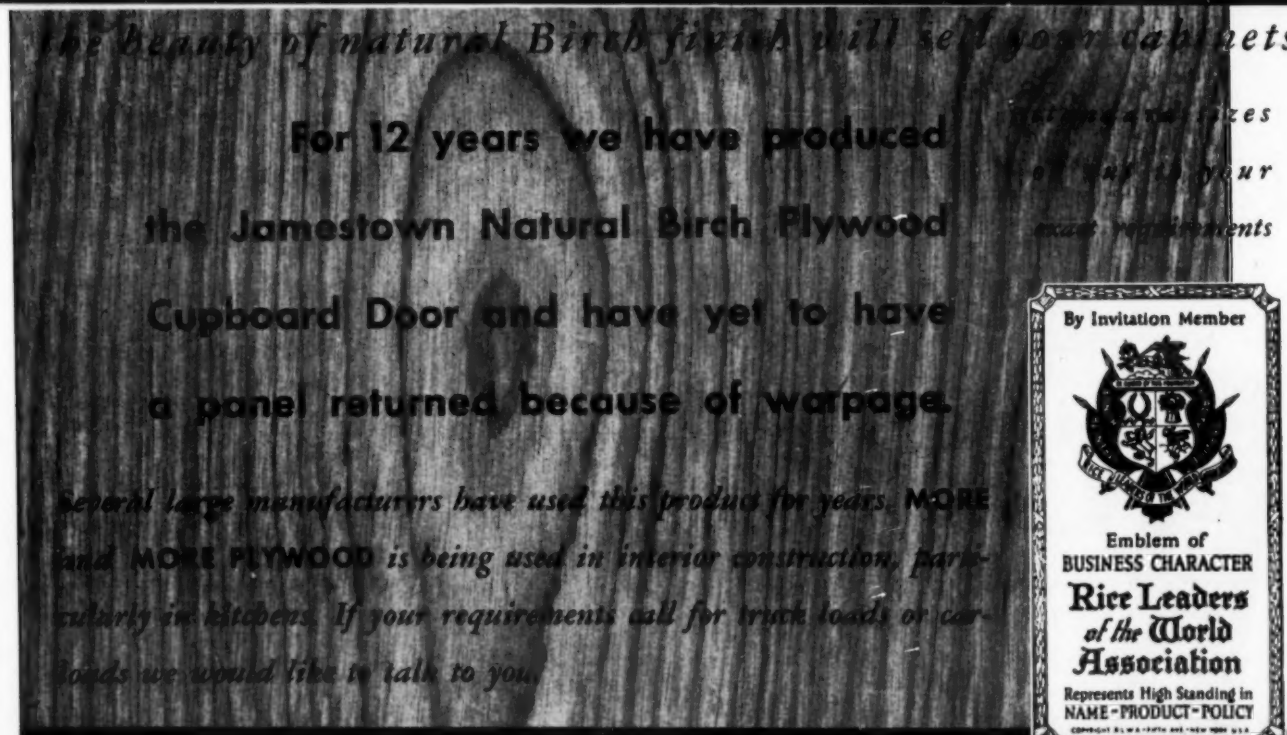
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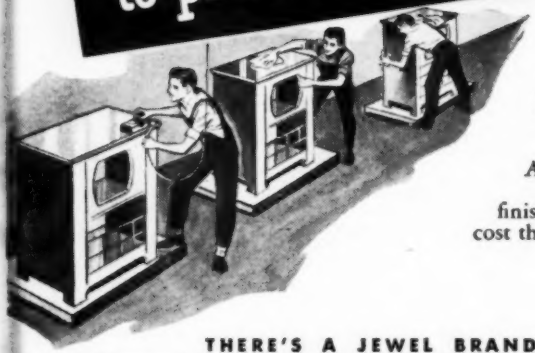

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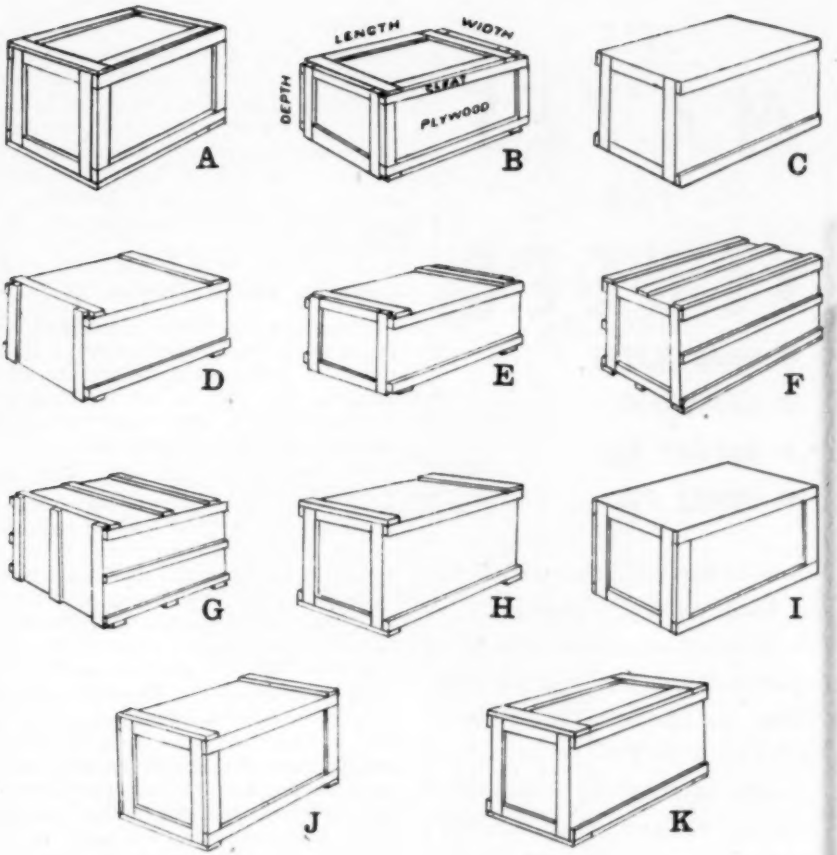

Fig. 3. Standard types of plywood shook cleating.

A. All panels fully cleated, easily assembled and unpacked.

B. All panels fully cleated, 3-way interlocking corner construction for heavy loads.

C. Ends fully cleated, sides half cleated, for light loads.

D. All panels half cleated, 3-way interlocking corners for light loads.

E. Ends fully cleated, balance half cleated, 3-way interlocking corners, for medium to light loads.

F. Ends fully cleated, balance half cleated, with extra center cleats for special loading.

G. All panels half cleated with extra center cleats, 3-way interlocking corners.

H. Similar to A, but sides, tops and bottoms half cleated, for medium loads.

I. Similar to A with flat (uncleated) top and bottom, for medium loads.

J. Similar to A with half cleated top and bottom, for medium loads.

K. Similar to A with half cleated sides, for medium loading.

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interior anchoring of contents, or for bracing.

Many plywood packages are designed for one-trip service and are not intended to be reused. In other instances, as in the textile industry, shooks may be knocked apart and returned several times for reloading. Such multi-trip service requires special attention to simplify the several re-nailings or re-wirings.

Packaging Design Through Testing

The more important manufacturers of plywood shooks have testing equipment for pressure application in any direction, as well as for tumbling in the interior of a large wheel or testing drum, some 16ft. in diameter.

The procedure involved in designing a new package is interesting. After a study of the package loading requirements, engineers select the several types of standard package most likely to be adequate. Such types are loaded and tested for all stresses likely to occur in service. After a full series of assorted tests, the tally sheets are studied for practical servicability. The right answer may be found in this first series of tests, but in some instances the preliminary results suggest modified designs, either for greater strength or for cheaper constructions. The design that emerges from these various tests may be put through a complete series of final tests to double-check and thus establish the specifications.

Such a testing program, at the laboratory of the Atlas plywood Corporation at Lawrence, Massachusetts, was fully described and illustrated in WOOD WORKING DIGEST, November 1948, to which interested readers are referred for further details.

Plywood Shooks for Export

Plywood packages for export are supject to much more severe conditions

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Straight, Sharp Glue Joints • cross or with grain

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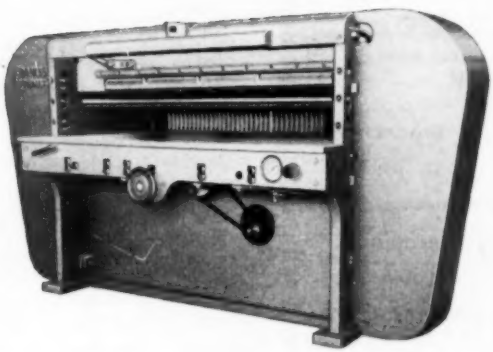

The New Francis Hydraulic Precision Cutter incorporates many features discovered under practical, production procedures in the plants of America's leading veneer and furniture manufactures.

Designed, developed and engineered for durability, the Francis Cutter has been tested and proved on America's production lines. It is sturdily and rigidly constructed, accurate to 1/64 cuts. It delivers sharp, straight glue joints on veneers up to 90 inches in width and in bundles 7" thick.

Its "easy-to-read" scale is illuminated by a flood light on the front cover. With three 20" long scales on the front section of the cutter table, a magnified depth scale of 1" wide by the depth of the machine, is graduated in 1/16", plus a master scale for positioning back feed bar, assures easy and accurate measurement for precision cutting.

The hold down bar is hydraulic pressure operated and is adjustable from a maximum of 7" to a minimum of ¾" wide clamping area. The back feed bar is electrically driven, but can be manually operated for fractional cuts.

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SLICED AND ROTARY CUT
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than for domestic shipments. Among them are weather exposure at loading and unloading docks, high atmospheric humidities on ship board, the mold and mildew growths that may occur in tightly closed compartments, and the insect depredations that are found in warm humid climates.

An example of the range of these moisture resistant requirements for plywood, designed for export shipment, is given in the "Joint Army-Navy Specification—Packaging and Packing for Overseas Shipment—Plywood, Container Grade—JAN-P-139: December 7, 1945."

While these government specifications may be more restrictive than is normally required for civilian goods, they do illustrate the durability factors that are involved in marine shipments, for either temperate or tropical areas.

These specifications divide the durability requirements into three types,viz.:

A. Weatherproof.
B. Special Moisture Resistant.
C. Special Resistant (Treated Only).

Types A and B may have the surfaces treated, described as Condition I, or untreated, while Type C requires no surface treatment, described as Condition II.

WEATHERPROOF (type A) "plywood is intended for use where the highest degree of moisture resistance is required, i.e., in reusable containers for overseas shipments." It must be realized that such overseas shipment for military supplies may involve unloading by lighters in open weather with possible immersion in sea water. The plywood must not disintegrate, nor the package come apart, even though the contents may be wet. The packages must remain suitable for reuse under these severe conditions. The specifications require that only hot press synthetic resin adhesives be used for this

type. The performance tests require substantial wood failure after a 2-cycle boiling test for 28 hours. It is almost as severe a test as is required for aircraft and marine plywood.

SPECIAL MOISTURE RESISTANT "plywood is intended for use where the highest degree of moisture resistance is not required, i.e., in single use containers, but where extraordinary long storage or severe conditions are anticipated, or extra protection is required over that afforded by type C plywood." This would refer to packages that may be stored in the open, or on wet sand, and must remain intact until the contents are used, but not longer. The glues required for type B are synthetic resins, not more than half extended on a dry basis, or if extended further, with 5% (on total solids) of a preservative ingredient; or a protein glue (soybean, casein or blood) with the same amount of preservative. The test is for delamination, under a 10-cycle wet and dry test, after which any delaminations shall not exceed 2" on the edge of a 6" by 6" square sample.

WEATHER RESISTANT "plywood is intended for general use in all single trip containers for overseas shipments." This refers to shipments where unloading and storage requirements involve no more than moderate exposure. The glues required are as for type B, but with reduced amounts of preservative, and the test is a 2-cycle wet and dry test, rather than a 10-cycle for type B.

Condition I, for treated surfaces, requires an external water repellant coating for surfaces and edges, which limits absorption to 2.2. pounds per 1,000 sq. ft. This treatment does not apply to containers for food, clothing or subsistence items, which might be damaged

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Write today for information on how Larson curved plywood can become a part of your products . . . how solid woods and costly substitutes can now be replaced. The results will be lower costs . . . greater strength . . . and added sales appeal for your products. Such has been the experience of other manufacturers who took the time to write. *Do so now . . . no obligation.*

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or deteriorated by such contacts or odors. All other goods shall be packaged in treated containers.

Paper Faced Plywood Shooks

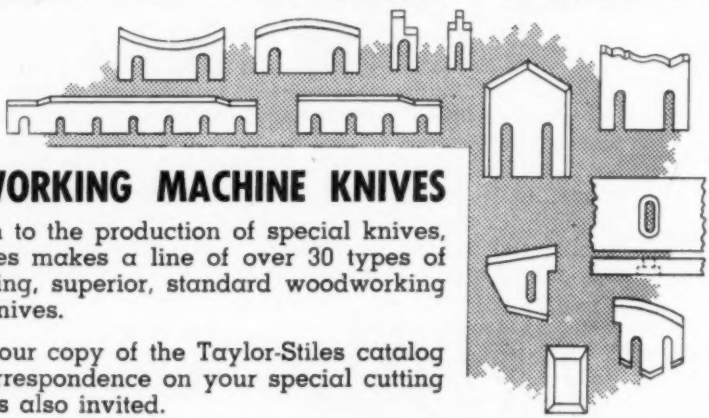
Another form of plywood shook has been developed, in which the two outer plies are of a paper liner type, rather than of veneer. While the inner layer of veneer may vary in thickness, up to 1/16", the maximum strength obtainable is probably less than with standard shook plywood, but the closure effect is more complete, since the paper surface is continuous, without such gaps or cracks as sometimes occur in veneer. This paper faced veneer may be cleated, in the same way as normal shook plywood, and makes a neat tidy container, usually limited to the smaller sizes.

This paper faced plywood, of which "Craveneer" (Chicago Mill & Lumber Company) is an example, may be made on a continuous hot roller type machine, rather than by a single sheet process in the conventional hot press. Hence the maximum thickness is seldom more than ⅛", due to the curvature of the hot rolls. The adhesive is reported to be a formulation of soybean meal.

Another type of paper faced plywood, "Tekwood" (U.S. Plywood Corporation), has a considerably thicker paper face, made of a specially processed kraft paper, substantially thicker than that mentioned above. While its major use, in ⅛" and 3/16" constructions, is for mechanical applications, it may be employed for high grade packaging. It is made in conventional hot presses with a urea resin adhesive.

Neither of these types of paper faced plywood meet the maximum requirements of the government specifications for overseas plywood containers, as described above.

EVERY TYPE AND SHAPE



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Send for your copy of the Taylor-Stiles catalog today. Correspondence on your special cutting problems is also invited.

TAYLOR-STILES & COMPANY

52 BRIDGE STREET RIEGELSVILLE, NEW JERSEY

Plywood Drums

Cylindrical plywood drums are a rather unusual form of plywood shook utilization. The plywood is curved between sets of triple metal rollers, as boiler plate is curved, and stapled along an over-lapping seam. Sheet metal heads were normally used, with spurs that could be bent and driven into the wood. These metal rims, with rolled wire inserts, resisted rough handling better than exposed plywood ends. When the drums were small, or contents were lightweight, wood or plywood ends gave satisfaction.

This type of plywood drum has fallen into disuse, more or less, as the cost of plywood has increased. Either the plywood maker or the customer was required to maintain and operate a nearby assembly plant, since the cost of shipping empty drums after assembly, was prohibitive except for short truck hauls.

A competitive factor was the spirally wound paper drum, which is often cheaper than the plywood type, and has been found adequate for many types of drum shipments, particularly in the smaller sizes.

Another type of cylindrical drum of plywood was developed for the flexible bag molding process, where the bottom was sealed in and made integral with the sides, as the plywood was glued together. This molded plywood drum was made with heat reactive resin adhesives. The loose wound spiral layup was inserted in a heated tubular mold, with a rubber bag inside. When inflated, this bag pressed the plywood against the sides and bottom of the mold, giving a very smooth exterior. The drum was removed by opening the tubular mold. Another process used a collapsible inner mold and external bag pressure, with electrical resistance heaters in the rubber bag.

MORE SPEED MORE SUPPORT MORE WORK

PADDOCK
BALL-BEARING
BAND-SAW GUIDES

Model 20, as pictured, enables a machine to cut material to any width with guides quickly adjusted to hold blade at 45°. The lower picture shows angular adjustment.

Interchangeable ball-bearing wheels run with saw-blade and support working portion of blade as if in a frame. Guides come in several sizes. Write, giving size of machines and material being cut. We will gladly provide information, make recommendations, and quote prices.

PADDOCK TOOL COMPANY
Guide Makers Since 1920
1418 WALNUT STREET KANSAS CITY, MO.

Paddock
BALL-BEARING
BAND SAW GUIDES

This molded plywood drum proved to be particularly useful for dry powders, which were unfavorably affected by contact with metals. During the extreme metal shortages of World War II(such molded drums were quite popular, but their production costs now limit them to highly specialized container requirements.

Conical Plywood Drums

The overseas packaging of spare motors for small airplanes, during World War II, encouraged the development of a most unusual plywood case, which is shown in Fig. 4. This abbreviated cone had a sturdy plank base, to which the motor was bolted. Since the loaded package had very low center of gravity, it was easily wheeled around on its lower metal rim, rather than lifted, a distinct advantage for emergency handling in remote areas. When made of 3-ply, ⅜" constructions, it proved to be amply sturdy to protect the delicate motor from damage in shipment. Such conical packages were much lighter in weight than conventional rectangular crates, and were

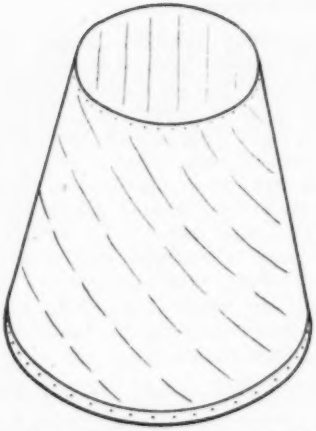

Fig. 4. Plywood package of conical shape.

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FRED M. VELEPEC CO.

71-11 64th Street **Brooklyn 27, N.Y.**

widely used for small plane replacements in the communications services of the military forces.

This conical plywood container was made on a rigid interior mold, with external tubular pressure, using heat reactive resin adhesives. This lay-up was with narrow strips of ⅛" hardwood veneers, with reversed spirals in alternate layers. Due to the tapering shape of the mold, the completed cone was easily slipped off. The raw edges were trimmed and the top inserted and nailed in place. The motor was mounted on the base, and the hood (cone and top) firmly nailed around the base, as the last operation. It is to be noted that the hoods were readily tested for preliminary shipment, and required a minimum of storage space.

Conclusions

The plywood container still lives up to the established tradition of plywood, i.e., maximum strength with minimum weight. While the use of plywood containers in smaller sizes, may have been curtailed by paper board products, they remain the standby for the safe shipment of products which require complete protective enclosures combined with extreme sturdiness. Plywood containers may not have the glamor of modern packaging techniques, but they have what is far more important, dependability in any emergency.

The End

"It is important that we sell the high ideals of America. It is vital that we present convincing arguments to the people of the world that what we have here by way of high standards of living, the material things we have and use, are but the fruits of the system which exists in America, and that we really want a free world in which such benefits can be enjoyed by all people."-**Senator Homer Ferguson (R-Mich.)**

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No Sherlock needed to find the perfect bonding agent for your gluing jobs. It's easy to locate in the container marked "URAC-185". Designed especially for assembly work or for gluing where inadequate pressure or irregular surfaces prevent uniformly thin glue lines. Use for furniture, toys, boats, millwork or wherever a joint stronger than wood or plastic is desired. AVAILABLE IN SMALL CONTAINERS: Pints, quarts, gallons and fives. FREE BULLETIN OR ORDER DIRECT. Branches at 109 Water St., New Haven 11, Conn., P.O. Box 8, Station D, Dayton 10, Ohio, 1103 W. Marietta St., NW, Atlanta, Ga., 705 Cullen Blvd., Houston 3, Texas, 760 Aloha St., Seattle 9, Wash., 5928 So. Garfield Ave., Los Angeles 22, Calif.

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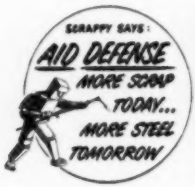
This Could Be New Steel

Search your plant for iron and steel scrap . . . help our country to get enough steel

It takes scrap . . . to make steel.

Multiply the amount of iron and steel scrap in your plant by 2 . . . that's the amount of steel that could be made if that scrap were salvaged.

Today, there's not enough scrap coming in from normal sources to keep steel mills and foundries producing at capacity.



YOUR JOB IS CLEAR
—GET IN THE SCRAP
IN ORDER TO KEEP STEEL COMING

NON-FERROUS SCRAP IS NEEDED TOO!

WOOD WORKING DIGEST

222 E. Willow Street **Wheaton, Illinois**

M AND M HAS NEW DIVISION

Merger of the Idanha Veneer Company, Idanha, Oregon, with the M and M Wood Working Company became effective in January. The Idanha Company becomes M and M's ninth major division and the seventh to be located in Oregon. Others are in California and Washington.

The veneer company's properties are located in Marion and Linn counties where the firm has produced green veneers since 1945.

The Idanha operation will be known henceforth at the Idanha Veneer Division of M and M Wood Working Co. Other divisions include four plywood mills, two door divisions, a wood tank and pipe company and a sawmill.

PAISLEY OFFICERS

Joseph Morningstar, president of Morningstar, Nicol, Inc. of New York and of its subsidiary company, Paisley Products, Inc., manufacturers of glues, adhesives and allied chemical products, has announced that Murray Stempel, of Chicago, a member of the board of directors, has been elected executive vice-president. Mr. Morningstar is retiring as president to become chairman of the board. George J. Muller of New York, has been elected president, and R. Mayson Foster, of New York, has been elected treasurer and member of the board of directors.

Earl C. Lenz, of Chicago, general sales manager of Paisley Products, and Sam Schuller, of Chicago, technical director, have both been elected new vice-presidents of Paisley Products. Mr. Lenz will continue in charge of sales, and Mr. Schuller will have charge of all production and technical operations for Paisley Products. Laurent LaBrie, of New York, has been elected assistant vice-president in charge of the New York office of Paisley Products.

TORGESON RETIRES

Oscar W. Torgeson, well known in the lumber industry for his numerous publications on kiln design and other phases of wood seasoning, has retired from the staff of the U. S. Forest Products Laboratory after more than 37 years of Government service.

Twenty-eight of these years have been spent at the Laboratory, most of them in research on wood seasoning. His studies in the field of kiln aerodynamics resulted in information now being used in the design of most modern lumber dry kilns. He showed how kiln design affects air circulation and uniformity of air movement through the loads of lumber. He designed special wind-tunnel equipment for evaluating the various factors that control rates and uniformity of air circulation in a lumber kiln.

Torgeson's most recent contribution to the lumber industry has been the revised schedules for kiln drying commercial hardwoods and softwoods. These drying-schedule recommendations have, in many instances, permitted kiln operators to reduce drying time for some species as much as 35 percent. These recommendations have not only reduced drying time, thus lowering costs, but at the same time have reduced seasoning degrade.

INTEREST YOUNG PEOPLE IN WOODWORKING

You folks that are in the woodworking industry owe it to posterity and the people that work for or with you to get as many of the young men and women as you can, in your community, actively interested in the same department of the industry. The incentive for most of us is—how much can I make? Well, here is an industry with a most varied and interesting number of positions available, with more coming up all the time — and the pay is far above the average and also getting better all the time. Write the editor if you wish more information.

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VB hot press

Check ALL these "Years Ahead" features that give you . . . . .

ACTUAL PRODUCTION ADVANTAGES

The modern design of the "VB" Press gives you savings in glue, veneer and labor. After-drying storage space is eliminated and the smoother surface of panels produced eliminates sanding and finishing costs. Compactly constructed, the "VB" Press requires no pit; giving the user a wide choice of placement for more efficient production.

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BOARD MATERIALS from SAWDUST and SHAVINGS

By J. P. Hohf

THERE has recently been a great deal of interest shown in the utilization of sawdust and shavings and similar wood waste for the production of board materials by methods other than the well-known wet-forming process, which is practically limited to the use of the coarser types of wood waste from which relatively undamaged fibers can be produced.

One of the earliest attempts along this line has been the production of cement-bonded boards for use where some structural strength and insulation are important. This process has found limited commercial application because of the inhibiting effect of the hemicelluloses and tannins of the wood on the setting of the concrete and of the tendency for absorbed water to freeze and thereby to crack the boards or blocks. Methods of controlling the setting rate of the cement have more recently been developed, but very close control in processing is necessary. One of the most successful wood-cement combinations has been the production of an acoustic tile material by using specially cut excelsior that is bonded with cement. This product has good fire resistance and, when properly set, good resistance to swelling and decay. However, in order to produce the best material, only specially cut wood wool or excelsior is usable, so that random sawdust and shavings are eliminated from use.

The so-called dry-formed or resin-bonded board materials appear to be much more attractive at the present time. There have been a number of successful applications of this process.

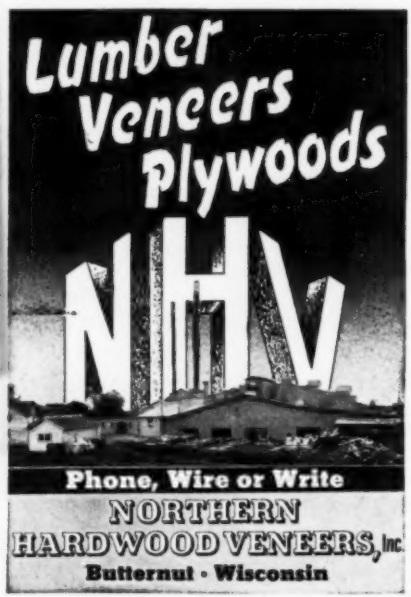
Sawdust, shavings, and veneer clippings of relatively wide range of sizes are being used to produce boards of various specific gravities and of a range of properties making them suitable for special uses. One of the early developments along this line uses 10 to 15 percent of urea-formaldehyde resin binder and graded sawdust or shavings to obtain products that are finding use as subflooring for linoleum, house sheathing, and core stock for furniture and doors. A somewhat similar process, also using urea-formaldehyde resin binder, has been developed for the utilization of veneer clippings, which have been reduced to a suitable size, for the production of core stock. Two millwork companies are producing phenolic-resin-bonded sawdust boards with five to eight percent of resin. This is being utilized very satisfactorily in the production of panels for millwork.

There are many other investigators who are approaching this problem from slightly different angles, including the semidry-formed process that is being developed in the Pacific Northwest. Such a utilization of wood waste promises

Mr. Hohf is a chemist at the Forest Products Research Laboratory, Madison 5, Wisconsin.

to become of major importance. The dry processes and semidry processes appear to lend themselves to somewhat smaller plant sizes than has been generally considered economical for the more common wet-formed or pulp process. For example, production of 15 to 30 tons per day of dry-form boards appears to be practicable, as compared to the 50- to 100-ton daily capacity considered most practical for the wet-formed process. Furthermore, it is estimated that the dry-formed plant can be installed for approximately two-thirds the cost of the wet-formed plant, based on the tons-per-day capacity; that is, at present prices, from $15,000 to $20,000 per ton of daily capacity for a dry-formed board plant, and $20,000 to $25,000 per ton of daily capacity for a wet-formed board plant. It is also true, however, that the resin binders required in the dry-formed boards result in a more expensive product than the wet-formed material, but this can be balanced to some extent by the special properties that can be obtained by this method. As a rule, the dry-formed boards are superior in hardness and nail- and screw-holding properties, which have made them particularly attractive for use as core stock.

The equipment required for the production of a dry-formed board is relatively simple. If sawdust and shavings resulting from primary lumbering operations are to be used, provision should be made for drying these residues. Conventional inclined drum or belt driers are suitable for the purpose. The sawdust, shavings, or veneer scrap must be sized or graded to prevent too wide a distribution of particle size. This requires a relatively simple hammermill and screening equipment. For the application of the binder to the wood



CLICK'S VENEER TABLES

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A handy book of accurate tables for quickly determining square feet contents of veneer and the cubic contents of logs, complete to fractional units.

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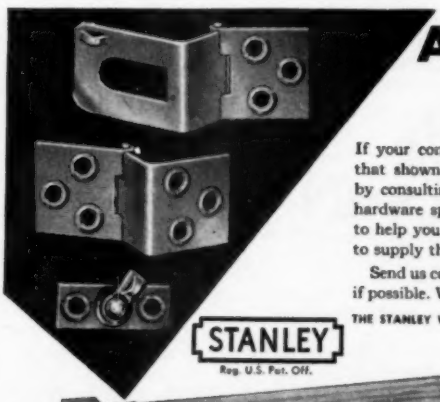
waste where liquid resins are used, ribbon mixers or concrete mixers have been found suitable. Where dry resins are used, a slightly more intensive type of mixing is generally employed for incorporating both the powdered resin and small amounts of water. Following the mixing, it is necessary to have an automatic or semiautomatic tray loader that is capable of loading the pans or trays with a uniform weight and thickness of the wood waste-resin mixture. These pans or trays are then transferred through automatic loading devices to multiplaten hot presses, where the board is formed and the resins are set under heat (350° to 450° F) and pressure (350 to 750 p.s.i.), with the amount of pressure applied determining the specific gravity of the finished product.

Since the supply of resins at present is very critical, it is suggested that anyone contemplating such a development should ascertain the availability of the resins before proceeding too far. But as conditions change and resin supplies become more plentiful, it is anticipated that much more sawdust and shaving type of wood waste will be used in the production of the special types of board materials.

OFFERS REDWOOD LUMBER

The Veneer Lumber & Plywood Company, 2637 S. Throop St., Chicago, is now offering redwood to its patrons. The company plans to carry a complete stock of redwood lumber, kiln-dried rough redwood in 4/4 through 12/4 thickness.

The Veneer Lumber & Plywood Company has served their customers for over 30 years. A year ago they purchased the J. Slimmer business and the Wooden Tank Company, both of Chicago. They also moved into new headquarters recently.



Ammunition Box Hardware

If your contracts call for hardware for ammunition boxes like that shown here, or for other ordnance equipment—save time by consulting Stanley. The largest manufacturer of hinges and hardware specialities, The Stanley Works has the "know-how" to help you develop the items you need, and the plant facilities to supply them on time.

Send us complete details of your requirements, including prints, if possible. We'll help you meet delivery commitments.

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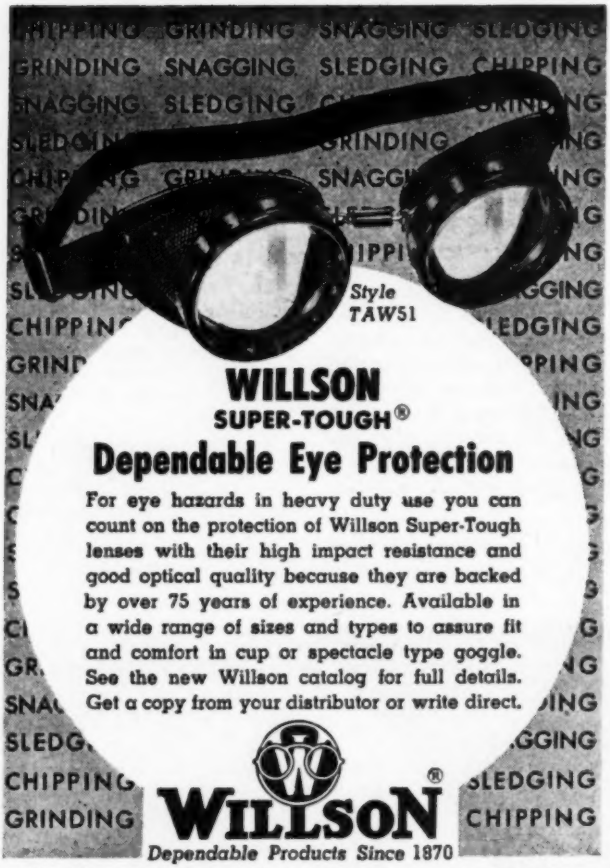
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WILLSON PRODUCTS, INC., 123 THORN ST., READING, PA.

ALL-PURPOSE WORK GLOVE

A new long-wearing, all-purpose work glove with special coating that is said to shed moisture and resist chemicals better than rubber is described in a new bulletin of the Mine Safety Appliances Company, Pittsburgh 8, Pennsylvania.

The new M. S. A. all-purpose work gloves are said to wear like leather, yet cost little more than ordinary canvas gloves. The vinyl-plastic coating stays flexible in extreme cold, does not become "tacky" at any high temperature to which workers' hands are normally exposed.

Although designed primarily for hand protection, the new gloves are tailored for comfort and utility, the bulletin adds. Seams are straight and there is no excess material in the finger crotches.

The gloves are available in fully coated or in ventilated, palm-coated styles, with either smooth or rough finish, and with a choice of knit wrist, 2" safety cuff or 4½" gauntlet cuff. The knit wrist model also is available in women's sizes.

MAKE SAFETY VITAL for the Employee

ANY well conceived safety program will go sour if you don't get the employees really interested in working safely and selling them on being safe workers.

When inspecting a plant for unsafe conditions most of the recommendations of inspection committees and safety engineers are concerned with the need for mechanical guards, mechanical improvements and concrete things which can be seen at the time of the inspection. But in investigating accidents a large percentage of the accidents are caused by those human failures which an inspector cannot see unless he happens to be at a certain place, at a certain time when a worker happens to indulge in an unsafe practice.

These unsafe practices, which are the underlying causes of most accidents include haste, taking chances, poor judgment, over confidence, lack of knowledge, lack of interest, improper supervision, wrong mental attitude toward safety, worker fatigue and many others.

Many of these causes of accidents can be eliminated through concerted efforts to get workers really interested in working safely. First and foremost comes proper supervision and training of workers by their foremen, that the right way to do any job is the safe way.

Encouraging people to work safely is primarily a sales job. You are a salesman. Men can be ordered or even compelled to do things up to a certain point, but compulsion cannot produce really good performance. Only interest —the desire to do good work—can bring superior accomplishment.

The first essential of a sound sale is a good product. Surely safety is such a product. In promoting the sale of products, salesmen and companies use many unusual methods to create interest. The safety man must do the same.

Selling Safety

Many unusual methods are being used to sell safety to workers. Here are a few of them.

1) Bulletins and posters, also motion pictures and slide films.

This subject was first presented before the 28th Annual Midwest Safety Show of the Greater Chicago Safety Council by E. R. Bartley, personnel director, Bunte Brothers, Chicago. We have condensed his speech for our readers.

2) Safety rule booklets for new employees.

3) Safety contests between departments, branches, etc. Contests are based on the trait that most people love —competition. One effective contest is the safety slogan type with perhaps a monthly prize.

Other rather clever ideas include printing safety messages on paper napkins and cups in the plant cafeteria or to purchase water cups with these safety slogans. Appointing members to safety committees gives them a feeling of responsibility. Safety suggestion systems with rewards are often effective.

4) Employee magazines can take a keen interest in emphasizing safety.

Bunte Brothers Sells Safety

A candy factory may seem to have little relation to a woodworking plant, but some of the methods used by this manufacturer could, perhaps, be used effectively in your own program.

Rather suddenly Bunte Brothers realized that they had not had a lost time accident for a long time. In fact there were 650,000 manhours chalked up with no lost time accidents. This gave them the starting point for a safety campaign.

Shortly thereafter the workers came into the plant and found signs "Make it a Million" all over the factory. A million what? Candy? Dollars? What? It was kept a secret for three days and then a letter was sent to each employee praising him for his part in the safety accomplishment and signed by the company president.

Safety must be sold to everyone in the organization. Management must actively support the safety program and should be satisfied with nothing less than the best possible safety performance.

Next a big thermometer was put at the plant entrance to show an up to date record of manhours worked without a disabling accident. Individual signs for each department were also distributed. We also used the slogan when we had our next pay checks printed and used it on the stubs. As we came closer to our goal we changed the motto to: "We are getting close, we will make it a million with your help."' Later when the goal was reached, we followed through with "Congratulations, you did it, you made it a million, now let's make it two million." And we changed our slogan to "Make it two million."

Then there was a nice trophy presented at a noon safety meeting in our company cafeteria and we gave everyone a free meal. We had speeches and announced another trophy which we urged them not to win. This trophy (a pair of crutches) was to be awarded to the department in which the first lost time accident occurred. It was placed in a conspicuous spot with a sign "Don't win This Trophy." This may sound like a juvenile idea, but it really worked. Actually when, some months later, a department did have a lost time accident we did not hang the trophy up in the department where the accident occurred because the people already felt very badly about it. However, it was an effective means of emphasizing our safety program.

All of this work on accident prevention certainly bore fruit. The employees of Bunte Brothers worked 1,678,295 manhours without being involved in a lost time accident. This safety campaign excited more interest among the employees than anything else we have ever done. The supervisors really did a good job of breaking in new employees. They trained both new and old employees that the right way of

Step on it for more production

PORTER 43-20J Automatic Hydracut Saw

FOOT PEDAL CONTROL ENDS OPERATOR FATIGUE

Increase lumber production in your plant with these Hydracut Saw set-ups.

1.

Standard Set-up. Hydracut Saw and tables.

2.

Hydracut Saw in single line conveyorized rough mill set-up.

3.

Hydracut Saws in double line conveyorized rough mill set-up.

The Porter 43-20J Automatic Hydracut Saw saves hours of labor . . . enables any cutting room operator, regardless of age, to cut more lumber per day by eliminating tiring hand operation. Operator simply positions the lumber against the adjustable cut-off stops . . . and presses the electrically operated foot control. The saw blade, mounted on a hydraulically operated carriage, *automatically* moves forward to make the cut and *automatically* returns. Fatigue from manual "push-pull" operation is gone.

Stroke length is quickly adjusted by a convenient lever. Cutting speeds range from 0 to 45 cuts per minute.

The new Porter Bulletin 43-20J-1 fully explains the Automatic Hydracut Saw. *Send for your copy today.*

C. O. PORTER Machinery Co.
668 Front Ave., N.W., Grand Rapids 4, Mich.

NO NEED TO RESET SAW

for second operation

Swivel action gives proper bevel to each tooth

WARDWELL Y-18 Cross Cut & Rip Circular Saw Filer

It is not necessary to reset saw during sharpening. All teeth are sharpened and beveled in one continuous operation. Sharp edges, true bevel and balanced points. No other sharpener has this patented swivel action. No other sharpener sharpens each tooth as it comes along. Write for Bulletin on Y18 Circular Cross cut and rip saw filer.

AC 38 SETTING MACHINE

Sets circular saws from 5" to 38" diameter. Automatic; speed 150 to 200 teeth per minute.

The WARDWELL Mfg. Co.

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doing the job is the safe way.

When an accident happens and a person gets hurt there often isn't much control over whether the injury is serious enough to cause him to lose time from work. We have all heard of auto accidents where a car is all smashed up and the occupants miraculously came out of it with only a few scratches. In other accidents where there wasn't much damage to the car, a couple of people may have been killed.

Every accident is a potential death case even though it may result in a very minor injury or in no injury at all. Therefore, the efforts in accident prevention must be aimed at the elimination of all accidents, not at the prevention of just the serious ones.

The End

PREVENT SKIN IRRITATION

While it might seem very complicated to get the right cream for each of the many different industrial causes of skin irritations, it is not necessary to get a special cream for each one of them," says Tom Mooney, technical director of the Safety Division of the Boyer-Campbell Company, 6540 St. Antoine Street, Detroit 2, Michigan.

"Most substances that cause skin irritation fall into two or at most three, groups, we are told. . . . One such group is composed of oils, solvents, thinners and other water-insoluble organic liquids. These are all alike in their immiscibility with water, and "Skin-Cote" No. 1, manufactured by the Boyer-Campbell Co., is oil repellent and is recommended for use on jobs where oils are a hazard. It causes the oil to form droplets and run off the skin, preventing the oils, solvents, etc from dissolving the skin's oils. Materials suspended in the organic liquid exposure, which might cause skin irritation, are

Atlas 10" FLOOR SAW

BALL BEARING EQUIPPED

- ★ Cuts 3¼" Deep
- ★ Precision-Ground
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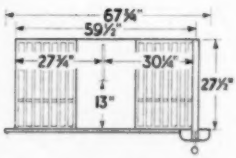
Perfect for Piece-Work Sawing



SOLIDLY built, with the precision and rugged strength of a metal working tool, this Atlas 10" saw can add new versatility and new production speed to your shop. It handles large stock easily — the ground grey-iron table and extensions give plenty of support for big boards, panels.

On small work, the quick-adjusting rip fence with vernier control can save many valuable minutes every day. Get all the details about this perfectly designed production saw. Send for latest catalog.

Quick-Set Rip Fence
Quick-Set Rip Fence locks or releases instantly, slides to position, lifts off! Saves time every time it's used.

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KALAMAZOO, MICHIGAN

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DEPENDABLE QUALITY TOOLS SINCE 1911

An extra hand on assembly jobs

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130A Spiral with the "Q-R" spring

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deposited on the barrier layer film, do not contact the skin and are easily removed at the end of the work period, when the protective film is removed with soap and water.

The other principal group is composed of water and aqueous solutions, water soluble oils and organic liquids soluble in water and "Skin-Cote" No. 3, which is water repellent, is recommended. It functions in the same way "Skin-Cote" No. 1 does, except in this case, the water, and whatever might be in its solution, forms droplets and runs off the skin . . . Even in some plants where they employ upward to fifty thousand men, their safety directors tell us that just these two creams take care of 90% of their problems.

EMERGENCY LIGHT

This automatic emergency light, available from the General Scientific Equipment Co., 2700 W. Huntingdon St., Philadelphia, Pa., offers light when regular power fails. Plugs into any socket 110 volt A.C. outlet (D.C. available) if there should be any interruption in the regular lighting circuit the GS No. 16 light will come on instantly and automatically, from power supplied by a dry battery.

The light clamps on to a standard 6 or 7½ volt dry battery. The powerful 21 C. P. floodlight will give many hours of emergency light. The light is adjustable in any direction.

Unit is self-contained, portable, can be carried for rescue or emergency work. Furnishes emergency light for operation of switches, valves, controls and for making repairs. Enables employees to remain on premises during a reasonable interruption.

"Now, son," said the infuriated father, "Tell me why I punished you."

"That does it," said Junior. "First you beat heck out of me and then you ask me why you did it."

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PORTABLE POWER TOOLS SPEED PRODUCTION

Skilsaw, Inc., Chicago, Illinois, takes us into a number of woodworking plants in this article. In each of them we find portable power tools doing a good job in boosting production. If you have never investigated the advisability of using portable power tools in your own manufacturing, write to us for a list of firms supplying this kind of equipment. They may be able to show you on-the-job short-cuts.

How can small woodworking shops, with limited capital, get the benefit of big-volume orders without a prohibitive outlay for new tools? This is a typical problem facing small shops today.

Mastercraft Industries, of Rice Lake, Wis., found a solution. Harold and Herb Johnson, owners of Mastercraft, had the kind of contract they had dreamed of—a huge goverment order for oak floor racks, to be used in walk-in type meat coolers. But with the order came the problem. Army specifications required the racks to be assembled with screws. Drilling through every board used in the racks was an economic pitfall. Drilling one hole at a time, even with electric drills, was out of the question because of the time that would be consumed. On the other hand, the cost of installing a custom-built multiple drill press would make the contract a liability rather than an asset.

The solution? The Johnsons found it in a multiple drill press improvised with Skil portable electric ¼" drills (manufactured by Skilsaw, Inc., of Chicago). The press holds up to 16 drills. The Johnson's unique, hydraulically operated press, built at a savings of thousands of dollars, has a drilling capacity of 13,440 holes per hour in the oak racks. What's more, the drills are readily detachable from the press for use in other parts of the shop.

Two men operate the Mastercraft-devised drill press. One feeds the lumber and the other removes the completed pieces. Fourteen pieces of wood per minute go into the machine, are drilled and sent on their way to final assembly. The assembly operation is done with the aid of two portable electric screw drivers.

"We have already turned out thousands of these floor racks and we have drilled hundreds of thousands of holes with these drills. Certainly if anyone has ever job-proved these drills, we have, with constant, hour after hour use during the last six months. And during this time we have not had one breakdown."

Multiple drill press with portable electric drills for drilling holes in oak racks.

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NEW ENGLAND'S WOODWORKING MACHINERY DEPOT

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Finishing operation on hull of boat made by Topper Boat Co. Hand electric sanders find a multitude of uses.

But Mastercraft is just one of a large number of companies that have found they can cut costs or even take on work they couldn't otherwise handle, just by using portable power tools.

Namor Products, Inc., of Cleveland, also uses portable drills in multiple mount.

"We drill three and four dowel holes at one time with seven Skil drills." says N. Y. Starke, president of the company, which turns out the Namor dinette furniture line. "The operator now does one operation in place of three or four. This is a great saving to us in time and money."

Namor has been using the portable tools for more than two and a half years and found the maintenance cost negligible. In addition to the drills Namor uses Skil drivers on the assembly job.

Specialized sanding jobs have spurred the use of portable tools. Whether the need for portability results from having to finish bulky objects or the necessity to work on irregular shapes, the small electric sander has reached the status of indispensability in many plants that turn out products made of wood.

At Topper Boat Company, Baltimore, Md., several models of hand electric

Portable belt sander in use to finish interior plywood walls in a custom-built house trailer.

sanders are used in highly specialized ways to shape and finish outboard cruisers. Topper boats are constructed of a variety of woods—oak for the keel and frames, solid mahogany for the side decks and cabin, marine plywood for the planking. This variety of woods used in special applications raises many of the same problems found in other woodworking plants.

"These sanders really pay off on tricky curves and softwoods," says B. J. LeBoullon, co-owner and plant manager of the company.

For finishing work on the hulls, Topper Boat Co. uses a Skil oscillating sander. This is a fast-cutting sander with an exclusive compound motion—cross-grain at the front of the sander, with the grain at the rear to give fine finish of hand sanding. Paper is attached by means of a spring clamp for most operations, although it may be applied with a special adhesive for working in corners.

Before the company began to use the Skil oscillating sander, the sanding was done by hand to avoid gouging in the grain of the marine plywood, we are told.

Another tool, a Skil disc sander, is used by Topper Boat in beveling opera-

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tions, and has proved highly successful in this job, where varying angles of bevels are required because of the curvature in the boat. This is a versatile tool which can also be used with a wire cup brush and a cup grinding wheel for other operations.

A different type of sander, a Skil belt model, is working out nicely in the cabinet shop of the R. C. K. Trailer Co. in Gary. C. M. Christensen, foreman in the cabinet shop, says, "They've got the right weight and the right belt speed and produce a fine finish. And they're easy to handle." The shop keeps the belt sanders working continuously eight hours a day in finishing interior plywood walls and wooden cabinets for the custom-built house trailers.

A time and cost-saving application of a portable power saw was made by Williamson Veneer Co. of Cockeysville, Md., producer of mahogany veneer. Because conical shaped logs are used in making the veneer, to give a more beautiful grain pattern to the finished

Portable power saw used to square off conical shaped veneer log.

product, the sheets cut from the log were irregularly shaped and had to be squared with clippers. There was frequent breakage of the veneer panels in this operation. But the company found that by using a portable electric

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groover saw, made by Skilsaw, the clipper work and breakage could be trimmed to a bare minimum. The groove cut by the saw squares off a good part of the log before the sheets are cut.

A problem was encountered in sawing, because mahogany logs must be soaked in near-boiling water for at least 24 hours before they can be turned on the lathe. Ordinary saw blades would load up because of the hot, moist wood. Williamson Veneer found, however, that the groover saw was able to handle this ticklish job.

Each shop, of course, has its own problems, but it can be seen readily that with just a bit of ingenuity, low cost portable power tools can be used to solve many of them.

FLOORING INDUSTRY NOTES

The hardwood flooring industry hopes to gain a greater share of the available residential market in 1952, President Milton Craft declared at the recent annual meeting of the National Oak Flooring Manufacturers' Association in Memphis, Tenn.

He reported that 1951 was the second biggest year in the industry's history and said the volume of shipments indicated that oak flooring was gaining increased popularity among home builders and buyers.

Final 1951 shipment figures for the Southern and Appalachian region, source of about 90 percent of the nation's hardwood flooring, were expected to approach 950 million board feet.

Craft said that would represent a decline of less than 8 percent from the record output of 1,025,762,000 board feet in 1950, as compared with a drop of about 22 percent in housing starts. While this unusually good showing could be attributed partly to the large carry-over of unfinished homes at the begining of 1951, he asserted, it also was evidence that more oak flooring was being used

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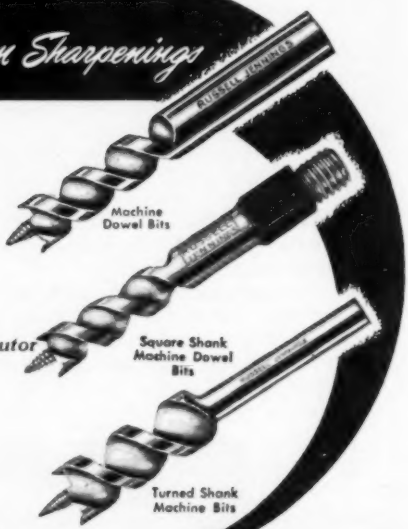

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LINDERMANS BOOST OUTPUT

Automatic Pre-fabricator; Rip & Sizing Saw; and Cutter Grinder Raise Productivity

Three "Linderman" machines, produced by Muskegon Machine Company, Newburg, New York, offer excellent opportunities to the woodworking plant interested in increasing its productivity per man-hour and per square foot of plant area.

Automatic Pre-Fabricator

Of the three, the most spectacular probably is the Linderman Automatic wood pre-fabricator, which takes untrimmed lumber—merely cut to length—and fabricates it into solid panels with less waste in edge-joining than you would believe possible.

The machine eliminates the necessity of edging and saw-kerf waste, straightens irregularities up to ½" with no waste, permits use of either hot or cold glue, enables re-use of off-cut to start another panel. The double taper dovetail joints which, according to U.S. ARMY specifications give a strength at least equal to solid wood, require less material than is saved by eliminating the edging operation.

Universal Rip Saw

Muskegon's model No. 50 while truly universal is specifically designed to keep up with the high output rates possible on machines like the Linderman Pre-fabricator (2500 or more feet of joint per hour for 1" or 2" stock.)

Chain operated, the track is designed to hold the lumber or panel against the sizing gage while traveling, insuring uniformity of size, panel after panel. A feed control lever changes the chain speed from 40 to 50 or 60 ft. per minute as desired for the particular material and thickness being sawed.

Universal Cutter Head Grinders

To bring tool maintenance up to the same high level of productivity and quality, Muskegon Machine also offers two types of cutter head grinders for Dovetail Glue Jointer and Automatic Pre-fabricator cutters.

The two machines are respectively individually motorized and belt driven. With these grinders, an inexperienced workman can keep Linderman cutters in perfect shape, reducing grinding time and insuring maximum production between cutter grinds.

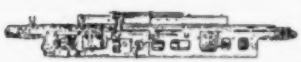
Bulletins

For bulletins on these machines, write to Muskegon Machine Company, Newburgh, N. Y., and ask for:

Automatic Wood Pre-fabricator.....Catalog No. 945

Model 50 Rip & Sizing Saw.....Bulletin No. 50-46W

Universal Cutter Head Grinders.....Bulletin 3-50W



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in relation to the number of new homes. Approximately 95 percent of the Southern and Appalachian output was oak. The rest consisted mainly of hard maple, beech, birch and pecan.

The association voted to renew assessments of members to help finance activities of the Oak Wilt Research Committee, which is engaged in a projected three-year study of ways to combat oak wilt.

Re-elected at the meeting were Craft, who is president of Chapman and Dewey Lumber Co., Memphis; T. C. Matthews of M. B. Farrin Lumber Co., Cincinnati, O., vice-president; Henry H. Willins of Memphis, secretary-treasurer; and 12 members of the board of directors.

New board members named were Sam Nickey, Jr., of Nickey Bros., Inc., Memphis; Clyde Ruble, Ozark Oak Flooring Co., Bismarck, Mo.; and Lyle Motlow, Williams and Vorris Lumber Co., Chattanooga, Tenn.

Those re-elected to the board, in addition to Craft and Matthews, were: J. G. Smith, Arkansas Oak Flooring Co., Pine Bluff, Ark.; B. A. Mayhew, Fordyce Lumber Co., Fordyce, Ark.; Walter J. Wood, E. L. Bruce Co., Memphis; V. A. Sells, Long-Bell Lumber Co., Kansas City, Mo.; S. B. Fullerton, Bradley Lumber Co. of Arkansas, Warren, Ark.; George Rozzell, E. A. Stewart Lumber Co., Texarkana, Ark.; D. L. Fair, D. L. Fair Lumber Co., Louisville, Miss.; R. M. Lindsay, Veach-May-Wilson Co., Alcoa, Tenn.; Allen Harris, Jr., Harris Manufacturing Co., Johnson City, Tenn. and L. C. Ailor, Miller Brothers Co., Johnson City, Tenn.

Secretary Willins reported that six additional companies were admitted to the association during 1951, bringing total membership to 81. Association members, he said, now account for about 70 percent of the industry's entire capacity in the Southern and Appalachian regions.

DECALS FOR WOOD SURFACES

The American Decalcomania Co., 4334 W. 5th St., Chicago, announces a new decal for marking and decoration of finished or unfinished wood surfaces. Called "Stiktite," the decalcomania provides maximum adherence to all types of wood surfaces — whether smooth, coarse, or even rough. The new decal is durable, washable and will not chip nor peel, it is claimed.

Applied with water alone, the "Stiktite" offers immediate adhesion to any wood surfaces. It also allows immediate packaging of the product after the decal is applied, without concern about its coming off. The "Stiktite" can be printed in any number of bright, vivid colors and in any size or shape.

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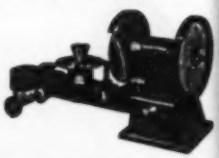

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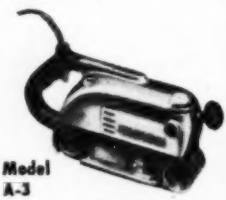

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LOSSES and GAINS WITH OAK WILT IN '51

Known locations for oak wilt have increased considerably. By 1949, wilt had been identified in Illinois, Indiana, Iowa, Missouri, Minnesota, and Wisconsin. In 1950, reports came in from Arkansas, Kansas, Nebraska, Ohio and Pennsylvania. In 1951, the reports added Kentucky, Maryland, Michigan, North Carolina, Tennessee, Virginia and West Virginia. Many centers of infection apparently developed within the last few years. Such infections were dated by relatively wide tree rings in formerly suppressed trees of other species.

New locations have been found faster, easier, and cheaper from the air than from the ground.

The identification of oak wilt has been positive beyond question. Cultures (as sure a test as the doctor's throat swabs for diptheria) have been made in doubtful cases.

The threat to the oak forests is real. Each year the danger increases. In certain woodlands the chance to control the wilt has gone by. In other areas any control measure is becoming more difficult and costly.

Serious as the threat is, the situation is far from hopeless Research already has given many important answers. It will produce more. Some of the results to date are summarized below. They have come from both federal and state agencies, including particularly those encouraged by grants from the National Oak Wilt Research Committee.

How the Fungus Works

The oak wilt fungus is "two-faced." The ordinary form has been known since 1944. Combinations of isolates in culture recently have produced a different form. Thus, from laboratory tests, research men knew what to look for in the woods.

The evidence we have now suggests that this fungus grows and forms spores under the loose bark on logs or standing trees. Possibly birds or insects could become smeared with spores, and then could carry the spores about from tree to tree—but this remains to be proved. We do know that only a few spores placed in a wound can grow and kill the tree.

In an infected tree the fungus moves with the water-conducting stream, sometimes throughout the tree, sometimes in one side, depending on the place of entry and the kind of oak. As wilt symptoms appear, the vessels are found to be plugged. Apparently the fungus stimulates "tyloses" to grow and to stop up the vessels. Thus, wilting might be explained largely, if not entirely, by a lack of water.

The fungus has shown various interesting and important physiological characteristics. We are leaving an account of them for technical papers.

An oak wilt epidemic involves an endless chain of events: the fungus gets into a tree; it causes wilt; it comes out; it is carried somehow to another tree; it gets in . . . and so the cycle continues. To prevent wilt we must find the weakest link in this chain of

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This statement has been prepared as a public service by the National Oak Wilt Research Committee, Leonard R. Steidel, Chairman, Memphis, Tennessee.

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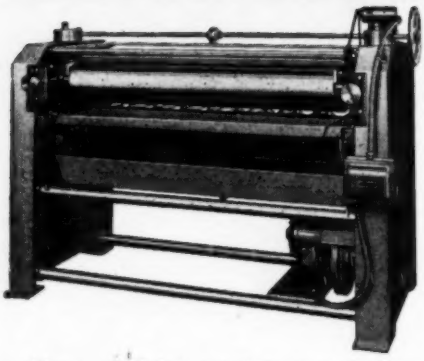

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events and break the cycle there.

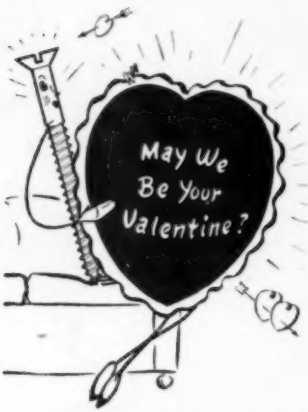
The weakest link for oak wilt seems to be the spread of disease from one tree to another. The long-distance spread and the local spread are by different means.

Long Distance Spread Unexplained

The means of long-distance spread is still a mystery. Somehow the disease jumps for many yards or even for many miles to healthy trees. However, the long distance leaps by oak wilt are ever-so-much less frequent than those by Dutch elm disease and by chestnut blight. For this reason we have a good chance to stop oak wilt. Possible carriers of oak wilt are birds and insects. Among the birds, woodpeckers and sapsuckers seem most likely. Among the insects, certain kinds have been found that will eat the fungus. They seem to thrive on it. But so far, while we have some indications, we do not yet have proof about any of the possible carriers. Fortunately, expansion of infection from tree to tree over long distances is much less frequent than that within 25 to 50 feet.

Local Spread

The spread from one tree to another



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And of course Southern screws are made from the very best materials . . . top quality extruded brass wire or high grade selected sulphur steel wire. Sizes range from ¼" No. 2 to 4" No. 20 in steel and 4" No. 16 in brass. Slotted or Phillips heads. Write today for our catalogue.

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4100 Dell Avenue
North Bergen, N. J.

325 West Ohio Street
Chicago 10, Illinois

280 Decatur S.E.
Atlanta, Georgia

SOUTHERN
SCREW COMPANY
114 RICKERT STREET
STATESVILLE, NORTH CAROLINA

nearby tree has been demonstrated repeatedly to occur through root grafts. Such grafts have been quite frequent. Their role was demonstrated with radioactive isotopes, poisons, dyes and spores. The progressive spread through a dense stand may be explained in this way. Fortunately this type of spread is relatively slow, usually killing one circle of trees a year. The distance is usually about 25 feet; but it is sometimes more, especially with older trees in fertile soil. The chances look favorable for stopping local spread.

Where oak wilt has come recently into an area, where the number and extent of local infection centers are still rather small, and where the costs are still reasonable, the possibilities seem good for eradicating the disease there. The methods successful in small areas of Wisconsin need to be tried

MONITE "3-day" GLUE

SPREADS UP TO
30% FARTHER
by • HAND
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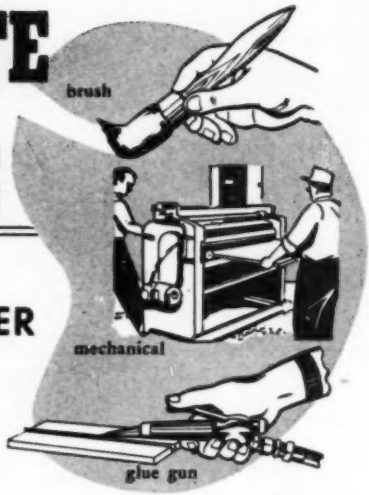

The CASEIN GLUE with 3-DAY POT LIFE!

MONITE "3-DAY" Casein Glue has good water resistance and great strength, 'stainsless', and remains usable 3 days or more.

SPREADS EASILY by brush, gun or mechanical glue spreader.

SPREADS up to 30% FARTHER than ordinary casein glues.

LOW pH means practical freedom from glue stain on woods such as oak.

INVESTIGATE the savings in time and material you can make with MONITE "3-Day" Casein Glue.

H. L. Prestholdt, Pres.

WRITE TODAY FOR FREE TEST SAMPLE!

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MONITE WATERPROOF GLUE COMPANY
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on other oak species and in different localities.

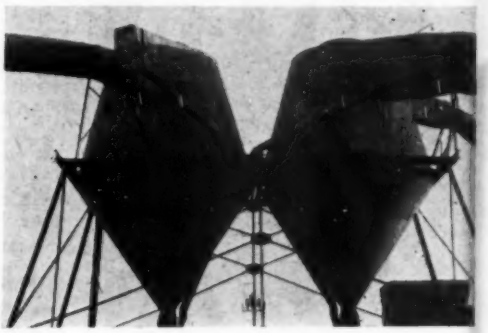
Those who wish to make some experiments may consider the following. Where the individual trees are of relatively little value, healthy trees may be killed with poisons in a ring around diseased trees for a distance of 20 to 40 feet. This method has been successful in central Wisconsin. The most toxic poison used was sodium arsenite (not arsenate) mixed with caustic soda. It was prepared[2] and applied as des-

2To make it, Pessin says to mix thoroughly eight pounds of white arsenic powder wth two pounds of caustic soda flakes in a metal contanier out-of-doors. Add very slowly three quarts of water while stirring the mixture which soon starts to boil by itself. When boiling stops and the thick, heavy liquid cools, it is ready for use. This sodium arsenite is an extremely dangerous poison. Make it out-of-doors. Don't breathe the fumes. Protect eyes, face and hands with glasses, a cloth tied over nose and mouth, and gloves. Don't spill it. Allow only a fully informed and responsible man to handle it.

QUALITY EQUIPMENT . . .

Plus **ENGINEERING ABILITY AND EXPERIENCE**

Equals a **CYCLONE INSTALLATION**



Installation of twin set of Cyclone Dust Collectors on boiler house roof of modern woodworking plant.

CYCLONE
Est. 1903

When you install a Cyclone System of Dust Collection in your plant, you can be sure the equipment is designed, engineered and placed in operation . . . to meet **your specific** needs. Here at Cyclone we have qualified and experienced personnel to help solve your dust control problems. Contact us for engineering survey with a view to increasing your output and saving you money. No obligation.

CYCLONE BLOW PIPE CO.
2546 West Twenty-First Street
CHICAGO, ILLINOIS

cribed by the Southern Forest Experiment Station (Occasional Paper No. 102 by L. J. Pessin) at New Orleans, La. Holes were chopped at intervals (at least 1 hole for a 3-inch tree, 2 holes for a 5-inch tree, 3 holes for a 7-inch tree, and so on) around the circumference of the root collar or in the top of buttress roots. They were filled with the poison from an engineer's oil can. One ounce of poison filled three to five holes. The special ax used to make the small holes rapidly is manufactured by the Council Tool Company, Wananish, North Carolina. Most trees died in 3 to 6 days. This chemical is extremely poisonous. It must be used only with suitable precautions so animals cannot get any of it. It is salty and attractive to livestock; they are apt to lick up any spilled arsenite and to die promptly.

Among other poisons, Ammate has

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KNIVES

do the job better

Your machines are only as efficient as their knives. Stalter knives will improve their work and production. They stand up under high speeds and heavy feeds. Thermo-Temper knives represent the finest in carbon steel; Tungsten-Temper gives you the advantages of high-speed steel. For over 35 years we've supplied woodworkers with knives for shapers, planers, tenoners, moulders, etc. Also automatic lathe knives and band saws.

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Let us recommend knives for your machines and jobs. Ask for catalog containing complete details. You are promised prompt delivery of all orders.

STALTER EDGE TOOL COMPANY

GRAND RAPIDS MICHIGAN

worked well but much more slowly. Frequent small notches made around the trunk with an ax were filled with crystals. The weed killers TCA and particularly CMU have shown promise in Wisconsin in a few trials. Kerosene with equal parts of 10 percent 2, 4-D and 2, 4, 5-T has done well. The bases of the tree trunks are sprayed during the two-week period when they were beginning to leaf out. Applied at this time the spray has killed oaks in Iowa; but it was not satisfactory during the summer. So far as we know. these chemicals have little, if any, hazard with livestock.

Much remains to be learned about the best poisons to use, about the best methods for applying them, and about their effectiveness on different species or under varying circumstances.

Where the value of the trees justifies the expense, root cutting has worked well where it was tried. Hand trenching, a mechanical ditchdigger, or a 36-inch cutting blade pulled through the soil behind a tractor, all have proved effective in Wisconsin. But timing is important. The roots must be cut before the infection has already passed from one tree to another through root grafts. If one waits for three weeks after symptoms first appear, he may be too late. This method is not feasible in soil with large stones or on steep slopes.

The possibility with local control seems excellent not only for the immediate locality but also for the long-distance spread. In new areas where oak wilt has not yet gotten out-of-hand, eradication of new infection centers has a good chance. Such measures will reduce and possibly eliminate the source of inoculum for further spread in that locality. However, the methods successful in one location need to be tried in other places, adapted to con-

ditions there, and greatly improved. Your own Agricultural Experiment Station can help you with the best procedures for your locality. Doubtless other and better means of control can be developed as the result of research.

Members of the National Oak Wilt Research Committee include: Leonard R. Steidel, chairman; Dr. A. J. Riker, University of Wisconsin; Dr. W. H. Bragonier, Iowa State College; Dr. Curtis May, U.S. Department of Agriculture Division of Forest Pathology; Drs. L. R. Tehon and H. B. Mills, Illinois Natural History Survey Division; Dr. C. M. Tucker, University of Missouri; and Capt. C. G. Sauer and Noel B. Wysong of the Cook County (Illinois) Forest Preserve District.

Among the other scientists associated with active projects in the program are Dr. T. W. Bretz, U. S. Department of Agriculture; Dr. C. L. Fergus, Pennsylvania State College; Dr. D. W. French, University of Minnesota; Drs. James E. Kuntz and R. D. Shenefelt of the University of Wisconsin; Dr. R. P. True of West Virginia University and Dr. H. C. Young. Ohio Agricultural Experiment Station.

From paper making to shipbuilding, wood's the logical material to use.

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For: Grinders, buffers, polishers, woodworking, lint . . . All Dusts.

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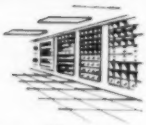
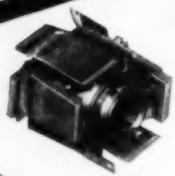
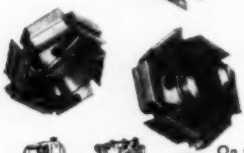
1214 Third St. S., Minneapolis, Minn.

Off the drawing board

or off the shelf







Diehl Vice-Grip, Round and Square Heads, Tongue and Groove Knives as well as thick and thin knives are available from stock in a complete range of standard models and sizes.

Diehl can design and build special heads and cutters to solve unusual problems. Diehl's engineering department is always at your service.

Write or call about your cutter needs—you can depend on recommendations of DIEHL—Makers of THE DEPENDABLE LINE.

CUTTER DIVISION

On the Banks of the Wabash

THE G.M. **Diehl** MACHINE WORKS, INC.

WABASH, INDIANA • U.S.A.

DOUBLE SURFACE PLANERS

The Goodspeed Machine Company, Winchendon, Mass., describe their modern motor driven surface planers in bulletin No. 107. The six-page brochure is well illustrated and provides a very complete description of the machines.

These double surface planers are made in three widths and are available for finely finished work, using any kind of wood and planed on both sides in the same operation. Both cylinder motors are installed on the same side of the planer, also multi-feed motor when required is installed on same side with cylinder motors, thus saving floor space. Sections on sectional rolls are 2" wide; eight 6" diameter feed rolls with two sets of infeed rolls are provided.

The bulletin gives a complete outline of features and specifications, too numerous to include in this short write-up.

PRODUCTION COUNTERS

A brochure which discusses the use of counters is available from the Durant Mfg. Company, 1929 N. Buffum St., Milwaukee 1, Wis.

These counters provide a visual record and a printed tape tabulation of machine production. The printer is attached to the particular machine and counts the material as it goes through the machine. The maximum rated speed is 500 counts per minute. These counters can be used in box making on compressors, hydraulic presses, power rip saws and veneer dryers.

For example, the rotary printing counter is driven from the conveyor of a veneer dryer and counts the footage of veneer as pieces come out of the dryer. The drive on the counter is an electric clutch with a brake so that the counter operates only when a piece of veneer is going through the machine.

The counter gives an accurate reading of the lineal footage resulting in great savings due to elimination of guesswork and errors caused by illegible or transposed figures, we are told.

TORIT CATALOG

The complete line of Torit Dust Collectors is described in detail in a new 24-page catalog recently issued by the Torit Manufacturing Company, Walnut and Exchange Sts., St. Paul, Minnesota.

Included in the catalog are both cabinet and cyclone type dust collectors, in sizes ranging from 1/3 h.p. to 5 h.p. Also shown are a complete line of fittings and accessories, and a series of blueprint sketches giving the overall dimensions of each unit. The adaptability of Torit Dust Collectors to meet specific problems and production setups is shown by numerous illustrations.

A NEW
AIR-POWERED
DETROIT *Easy* FINISHER

The new Model AF, a fitting companion to the Easy *Electric* Finisher line—a full size, single pad, production air sander! Its genuine *reciprocating* action (*not* orbital) produces the perfect finish without hand clean-up of swirls, etchings or other objectionable abrasive scratches. A water connection for wet work, pads for flat or curved work, make the new Easy Model AF ideal to do your job better . . .

- **STRATE-LINE ACTION** works up to right angles, no abrasive scratches, no hand clean-up.
- **SINGLE PAD,** full size, proven most convenient, uses ⅓ standard sheet sandpaper, 3⅔" x 9"
- **COMFORTABLE GRIP,** feather-touch palm-pressure start-stop control; front knob for extra convenience.
- **LIGHT WEIGHT**—under 6 pounds —but full sized, not a miniature.
- **SMOOTH,** vibrationless mechanism for efficiency and ease of operation.
- **ALL-NEW QUICK GRIP** abrasive holder for instant attaching of up to 12 abrasive sheets.
- **PADS OF FELT,** rubber or composition for all sanding, rubbing and polishing jobs.

Write for latest literature and name of your nearest Easy dealer.

DETROIT SURFACING MACHINE COMPANY
1278 E. Eight Mile Rd. • Detroit 20, Mich.

U. S. PLYWOOD CATALOG

The new 43-page "Weldwood Catalog" has recently been published by the United States Plywood Corporation., Weldwood Building, 55 W. 44th St., New York 18, N. Y.

The new booklet contains descriptions, photographs, specifications, and list prices of softwood and hardwood plywood, doors, plastics and the many specialities which comprise the Weldwood family of products.

ROTARY WORK FEED TABLE

A bulletin which describes the Bellows rotary work feed table is available from the Bellows Co., Akron, Ohio. This 16-page bulletin illustrates and describes completely the work feed tables. Installation photographs describe in detail all parts of both Bret 22 (standard 22" table top) and Bret 10 (standard 10" table top), including dimensional drawings and specification data. The bulletin also shows wiring diagrams and electrical hook-ups.

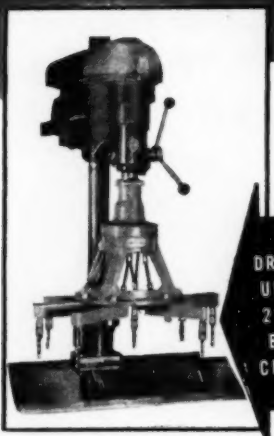
Modern System in Richbilt Company
SAVES 56 SWEEP-UP HOURS
DAILY BUILDING
LADDERS
Large Saws like this MUST BE KEPT CLEAN
GET SET TO BREAK SOME RECORDS WITH
YOUNG & BERTKE
DUST CONTROL SYSTEMS
RICHBILT
PLANT FREE OF DUST
YOUNG & BERTKE DUST CONTROL SYSTEM saves 56 Sweep-Up hours in time DAILY by removing Sawdust and Shavings from Shapers, Saws, Chuckers and Molders PLUS the reduction in absenteeism caused by colds and respiratory infection. Tons of sawdust, shavings, etc., are whisked outside every week, leaving the plant free of dust.
If your present system needs modernization, or if you are contemplating a new system, it will pay you to consult us.
The YOUNG & BERTKE Co.
1122 BUCK STREET, CINCINNATI 14, OHIO
DESIGNED • FABRICATED • INSTALLED

We are told that the rotary work feed table increases machine production, reduces worker fatigue, assures greater operator safety and cuts non-productive loading and unloading time. With the feed table an operator can load at one station, unload at another, while work is being done at other stations, thus preventing non-productive loading and unloading time from cutting into the machines productive potential.

Send your request for this bulletin to Mr. W. C. Richards, The Bellows Co., 222 W. Market St., Akron Ohio.

WALL CHART

A new decimal equivalent wall chart, offered free on request to manufacturers, engineers, engineering and industrial training schools, has been announced by John Hassall Inc., Clay and



FASTER HOLE PRODUCTION

WITH

Commander MULTI-DRILLS

- Drills up to 8 Holes at 1 Stroke
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- Adjustable to Any Hole Pattern
- Quickly Pays for Itself Many Times Over

● Commander MULTI-DRILLS are instantly and easily adjusted to handle any hole pattern within a 9" circle. Standard Extension Spindles will increase working area to 22½". Minimum center distances close as ½". Compact in design, ruggedly built, Commander MULTI-DRILLS are making BIG Savings in time and labor for woodworking plants everywhere. Special adaptations available.

Your nearby Commander Distributor has the MULTI-DRILL. Write for his name.

Write FOR CATALOG #851 which describes Commander's Production Tools

Commander MFG. CO.

4222 W. KINZIE STREET • CHICAGO 24, ILLINOIS

Oakland Streets, Brooklyn 22, New York.

The new chart is accurate to four decimal places. It is printed in three colors, not just for attractive design but to signal decimal-equivalents of fractions.

This 17" x 24" wall chart is an improved redesign of a chart originally issued by John Hassall in 1942, for which there have already been more than 50,000 requests.

The chart is framed by 88 interesting types of special cold-headed products manufactured by John Hassall. Smaller hand size charts are also available on request from John Hassall.

LOGAN HYDRAULIC CYLINDERS

The new catalog on the Logansport Machine Company's 750 series rotating hydraulic cylinders is now available. The 750 series is designed for operating pressures up to 750 p.s.i. and incorporates many advancements in design and construction to provide high operating efficiency. The many different types and combinations of mountings available make these cylinders adaptable to a wide range of applications.

The catalog contains necessary technical and engineering data to enable you to determine the type and size of cylinders which most effectively meet your requirements. It is well illustrated with pictures and diagrams showing the different models and types of cylinders.

Write to the Logansport Machine Co., Inc., Logansport, Indiana.

A.W.P.A. MANUAL

The American Wood-Preservers' Association, announces the issue of a completely revised A.W.P.A. manual of rec-

imrie "sipho-fan" progressive kiln

First scientifically accurate, high speed, progressive lumber dry kiln. Your present progressive kilns can be modernized without changing to compartment type kilns or altering handling methods. Equally efficient either end piling or cross piling. Imrie ElectroniK Control provides exact automatic control of temperature, humidity and ventilation during each progressive stage of the drying process. Retain the good features of your present progressive kiln layout. Keep storage and handling costs low. Convert at half the cost of equivalent capacity in modern compartment type kilns.

INCREASE PRODUCTION OF *QUALITY DRIED* LUMBER AT YOUR PLANT WITH THE IMRIE "SIPHO-FAN" PROGRESSIVE KILN!

IMRIE DRY KILN COMPANY

PEARL & OTTAWA —
GRAND RAPIDS 2, MICHIGAN

ommended practice. This manual contains all of the current standards of the association relating to preservatives, treatment of commodities, and analysis methods used in the impregnation of wood for protection against fungi, insects, marine borers and other destructive agencies. It also contains miscellaneous standards for the purchase and preservation of forest products, inspection and care of treated wood, as well as conversion factors and correction tables.

The manual is a useful guide to the producer or consumer of treated wood products and to specification writers, engineers, architects, purchasing agents, contractors, builders and others concerned with heavy or residential construction.

The 150 page loose-leaf handbook in black fabrikoid ring binder is available from the headquarters office of the association, 839 Seventeenth St., Northwest, Washington 6, D.C.

NATIONAL
Orbital Action

Model 400

National's Model 400 orbital action air sanders are used by leading manufacturers of high grade television cabinets to speed sealer sanding and other finishing operations. Fast, lightweight, vibrationless . . . these sanders not only produce a better finish, but can cut sanding time up to 75%. National also manufactures a Model 300 two-pad, reciprocating sander for use where straight-line action is preferred. See your dealer or write for details.

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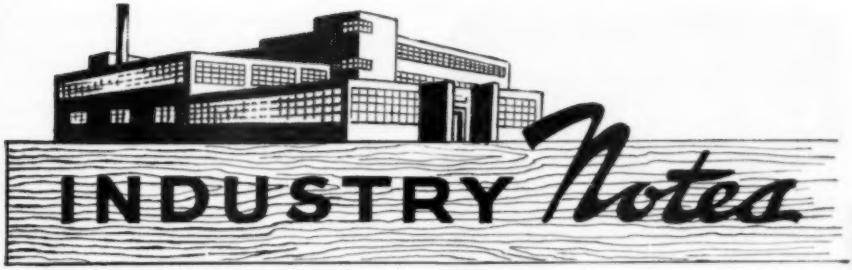


AMERICAN WOODWORKING MACHINERY COMPANY IS FOUNDED

Announcement was made recently of the formation of the American Woodworking Machinery Company, Hackettstown, New Jersey.

The new company was organized by Robert H. Byrne, formerly twelve years with the American Saw Mill Machinery Company where he was vice-president and sales manager of the woodworking machinery division. He will head the new organization as president.

The other officers are R. D. Wall, vice-president; J. W. Birchard, vice-president; G. D. Mayberry, treasurer; and L. A. Weimer, secretary.

"The new company," Mr. Byrne said, "is a nationwide selling organization of woodworking machinery specialists who have been factory-trained to intelligently serve industry. The organization is unique, first, because it is specializing in woodworking machinery only; secondly, it operates in all the principal cities in the eastern and northern central parts of the United States; and thirdly, is owned, operated and controlled by the officers and salesmen—all of whom have already had years of experience selling woodworking machinery in the territories they now cover, having all been formerly associated in various sales capacities with the American Saw Mill Machinery Company."

These sales representatives are located in such city areas as Boston, Mass.; Rochester, N. Y.; New York City; Atlanta, Ga.; Cleveland, Cincinnati, Newark, Detroit, etc.

"While at the present time the company is strictly a selling organization,"

Robert H. Byrne

Mr. Byrne added, "as soon as the sales expansion program is consolidated, the company will enter the manufacturing field also by providing special high speed woodcutting production machinery which will be distributed exclusively through its own selling organization and machinery dealers throughout the world."

MULLER GIVEN TOP JOB

Joseph L. Muller who has held the position of assistant secretary of the

Foley Sharpened Saws

CUT HIGH LABOR COSTS

NEW MODEL 61 FOLEY AUTOMATIC SAW FILER

Production Jumps 25% to 40%

when your operator's saw is sharpened on a New Model 61 Foley Automatic Saw Filer. His saw will cut faster, smoother, run cooler and *stay sharp longer.*

Prove it by 30 DAY TRIAL in Your Own Shop

Try the Foley Automatic Saw Filer for 30 days in your own shop. You'll be under no obligation. See how it sharpens your hand saws, band saws up to 4" wide and cross-cut circular saws 3" to 24" in diameter. Notice how the Foley Automatic Saw Filer automatically corrects uneven teeth caused by poor filing and restores them to even size, shape and spacing. You'll say the Foley Automatic Saw Filer is a "must" for every well run woodworking plant.

Free Book Tells How

The instruction book that goes with every Foley Automatic Saw Filer is yours for the asking. Here you can read how inaccuracies are eliminated through simple and positive adjustments. This book does a double job . . . helps you cut production costs with better cutting saws and shows you how to lower your saw maintenance costs.

FOLEY MFG. CO. 3351 N.E. 5th St.
Minneapolis 18, Minn.

Please send instruction book and information on 30-day trial offer.

Name .....

Address .....

National Hardwood Lumber Association has been advanced to the office of acting secretary-manager succeeding John M. McClure who is retiring from active management of the 55-year old association. McClure has been designated as president emeritus by the directors and will act in a consultant capacity to the association from Memphis.

Muller's wide experience in the hardwood lumber industry, his education in forestry and his heavy organizational duties as head of the Forest Products Division of the Department of Commerce during World War II eminently qualify him to direct the activities of the headquarters staff and the 115 hardwood lumber inspectors located in hardwood producing and consuming areas throughout the United States and Canada.

CLYDE D. MARLATT

Clyde D. Marlatt recently retired as executive vice president of the Martin Dennis Company, Newark, N. J. He is a director of the Manufacturing Chemists Association, Washington, and is now the new secretary-treasurer of the National Association of Glue Manufacturers with headquarters in New York City at 55 West 42nd Street.

SYMPOSIUM ON FINISHES

The Organic Coatings Research Laboratory of the Case Institute of Technology will conduct a symposium on "Recent Advances in Industrial Finishes," Feb. 27-29.

The course on "Paint as an Engineering Material" will include such subjects as new aspects of color design, spray application, electrostatic spraying process, writing paint specifications, laboratory testing and similar topics.

Reservations, there is a registration fee of $35, should be made through W. von Fischer, Head, Department of Chemistry & Chemical Engineering, Case Institute of Technology, University Circle, Cleveland 6, Ohio.

ANGELL APPOINTED TECHNICAL DIRECTOR

Herbert W. Angell, for the past 13 years a member of the technical staff of American Lumber and Treating company, Chicago, has been appointed technical director of the company and will assume responsibility for management of its technical department, laboratory and licensee quality-control.

Angell joined AL&T as an apprentice in 1938. Internationally known for his work in wood-treating, glues and laminating techniques, seasoning and related fields, Angell was responsible for many advances in wood utilization in World War II, and is currently active in technical cooperation with the department of defense on projects aimed at improving the characteristics of wood products used in the rearmament program.

INTERNATIONAL TRADE FAIR

The second Chicago International Trade Fair is scheduled for March 22 to April 6. It will again be held at Navy Pier in Chicago. There were more than 2000 exhibitors last year.

Additional information is available from Executive Vice President John N. Gage, Colonel, U.S.A., Merchandise Mart 54, Chicago.

IMPROVED METHOD TO

APPLY GLUE

Cheaper . . . Faster . . . Better

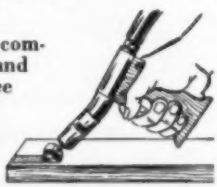
Gluetool at last helps you solve your glue assembly problems by scientifically applying practically all cold glues — in the right amounts — at the right places . . . and without any mess.

Gluetool tank for 1 or more operators.

Gluetool makes glue application easy for all size dowel holes, grooves, mortises and flat surfaces by air pressure application through the Gluetool tank and special designed, automatic, handy-grip spreader heads.

Operation is so simple and easy gluing can be done by UNSKILLED labor. Designed to meet almost any glue set-up requirement. Adaptable for one or more operators.

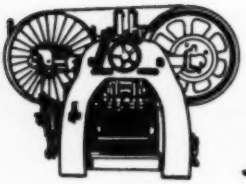
Write at once for complete information, and you'll instantly see why GLUETOOL is going into so many plants from coast to coast. Don't delay — get the facts today.



Handy-grip, automatic spreader heads

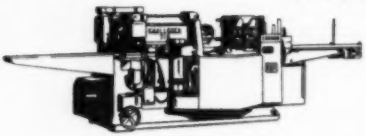
GLUETOOLS, INC.

1930 N. Meridian St. Indianapolis 2, Ind.



Prescott Resaw

CKL Door Sticker



Morgan Nailer

Lombard Chain Saw

Lubrication Problems?

not on these machines!

. . . they're all BIJUR equipped

Every one of these machines has a Bijur system built in to solve its own particular lubrication problem. The compact *chain saw* is oiled by a miniature lubricator. The *resaw* and *nailer* use a "one-shot" system. The *door sticker* has a fog system to keep its spindles running smoothly at 9000 rpm. All four prove that machines run smoother *longer* on Bijur-oiled bearings.

Write for Bulletin WW

757

BIJUR

LUBRICATING CORPORATION

Rochelle Park • New Jersey

EQUIPMENT and Supplies for the WOODWORKING INDUSTRY

EQUIPMENT OFFERED BY FOOD MACHINERY CORPORATION

The Food Machinery Corporation, Riverside, California offers a line of machinery useful in many woodworking operations. The machines described here particularly apply to the box making field. Additional information about any of the equipment is available from the company.

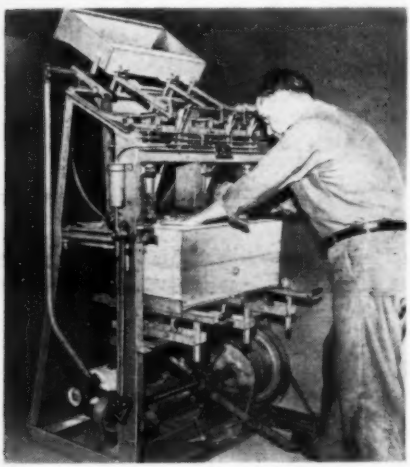


Figure 1.

Because of its light weight, speed, accuracy and simplicity, this type X.E. nailing machine (Figure 1) made by Food Machinery Corporation is especially useful as an egg case making machine. It drives from 6 to 7½ nails per second, three nails being driven per drive—one nail in each end and one in the center of the case.

The average production on this machine is 100 to 150 cases per hour, based on the average size egg case. The foot pedal is held down until all the nails desired are driven and then the foot pedal is released. Shook is fed by hand. As each side or bottom is completed, the operator turns the egg case and feeds the shook to complete the unfinished sides. (Box size: 26" x 12½" x 11¾".)

It takes just three seconds to nail a unitized lid on overfilled apple and pear boxes and similar industrial containers with this Model XLAJ-2 lidder, we are told by Food Machinery Corporation.

The operator stands to one side of the conveyor line to operate the lidder (Figure 2), allowing a continuous flow of boxes through the machine. This machine is used in Pacific Northwest apple packing houses because it does a neat, uniform job without crushing the fruit. It is operated by a foot lever. Lids are fed into the machine by hand. The boxes are automatically ejected out of the machine after being lidded. (Box

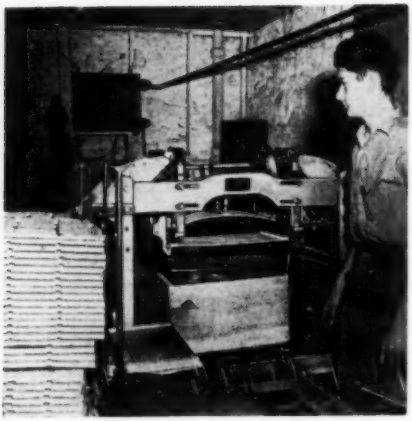


Figure 2.

sizes: lengths—19⅜", 19½", 19¾"; width —11½"; max. depth—10½"; min. depth, 4½".

Put in the shook, push the "run" button and this fully automatic model XAPS box-making machine turns out 10 completed apple or pear boxes per

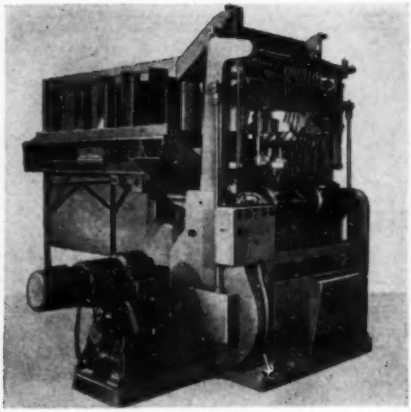


Figure 3.

minute (Figure 3).

"Forward jog" and "reverse jog" buttons on the left give the operator precision control in case bad shook becomes wedged in the machine. The smaller switch gives him instant control of the shook selector. The 3 h.p.

Better-Built Trucks by TOWSLEY

give better service, last longer, cost less in the long run.

Phone, wire, or write for quotations!

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and many other materials.

Write us if you have an adhesive problem. Samples will be submitted without charge.

ADHESIVE PRODUCTS CORP.
1660 BOONE AVE. NEW YORK 60, N. Y.
ESTABLISHED 1935

electric motor drives this senior automatic box maker, and this variable speed motor adjusts the machine's output to meet production needs. The motor's speed feature is particularly necessary when the machine must be slowed down because of bad shook.

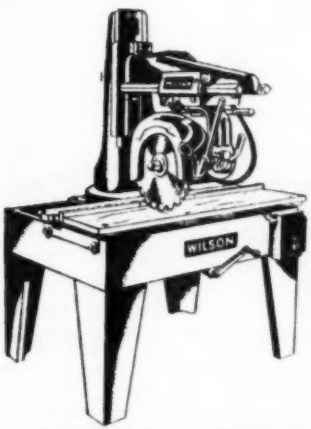
"FF" GLUE GUNS

For fast efficient gluing the J. P. Fox Co., 5514 York Blvd., Los Angeles, Calif., is offering their "FF" glue guns. These units consist of a pressure tank—sizes from 1 to 5 gallons, pressure gauge, hose and several styles of guns. Guns are interchangeable for the particular job at hand.

Other uses for the guns are being developed. At present they are effectively used in the plastic field where liquid plastics are used.

A new addition has been made in the manufacture of the tank. It is now completely cadmium plated inside and out. This is said to give it a much greater life expectancy. The manufacturer tells us

that users of the guns say the guns help them conserve glue while giving a good quality finished product.



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A rugged, dependable, fast machine of more than a thousand uses

Compound Mitering - Cross Cutting Rabbeting - Dadoing - Ripping - Shaping Fluting - Ploughing and many more operations are possible using this versatile machine. Write for further details.

Immediate Delivery on 2 to 7½ HP

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WILSON SAW DIVISION

MEDIA MACHINE WORKS, INC.

Est. 1922

644 Park Ave., Media, Pennsylvania, U.S.A.

NEW UNDERCOAT

Chemists for the United Lacquer Corp., Linden, N. J., have developed a white synthetic undercoat, PA 2063, which when covered by a lacquer, synthetic enamel of other top coat, gives fir and other marginal woods the appearance of gum woods. The undercoat has superior filling properties and the ability to hold down a wood's grain. Another major advantage of the new material, says the manufacture, is its excellent "holdout" charateristic which prevents a glossy top coat from sinking in.

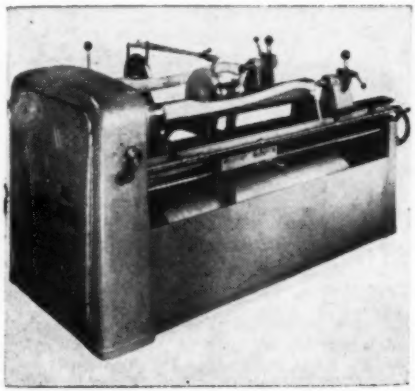
When PA 2063-coated wood is sanded, it practically powders off and this feature will save many manhours required in the finishing operation. Other advantages are: dries rapidly; can be sanded same day as applied.

Developed originally for priming and undercoating fir, PA 2063 may be used effectively on poplar, pine and bass, as well as the gum woods.

In addition to white, the new undercoat will be made available in the pastel shades.

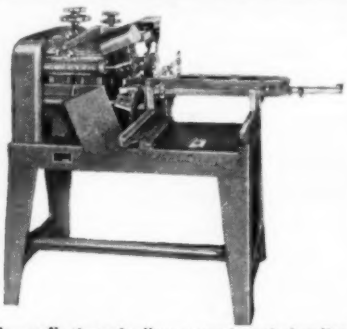
SWISS CARVING MACHINE

The Woodworking Precision Machinery & Tool Co., 224 Fifth Ave., New York, is now introducing a Swiss-made automatic carving machine in the U.S. One model of this machine, called the KMG, will follow a master pattern automatically and carve two legs at one time.



HARRIS

DELUXE FLOOR MODEL TENONER



New adjustment allows exact and simultaneous adjustment of tenon spindles.
3 H.P. Motor.
3 Inch Blades
V Belt pulley drive on both tenon and cope spindles.
Heavier Construction for greater accuracy.

MILLBURY MACHINE COMPANY
13 WATERS STREET MILLBURY, MASS.

Nutting's 61st Year

Fig. A

A NUTTING VETERAN

A husky, long lived truck at a low price. Semi-steel running gear — 13½" diam. main wheels that roll easily—6½" casters that really swivel. Northern hardwood, rigid frame, platform 15" above floor. Platform sizes 27 x 48, 27 x 54, 30 x 60.

Write for Bulletin 47-W

Nutting Truck & Caster Co.
1128 Division Street Faribault, Minnesota

The operator's job is to load the machine and then remove the finished stock. While the machine is working he may finish-sand the carved piece.

CHAIR JIG DOLLY

Special sofa and chair jig dolly being used by many large furniture companies to streamline their production of overstuffed furniture. This versatile and easy handling jig fixture, designed and manufactured by Towsley Trucks, Inc., 1766 Elmore St., Cincinnati 23, Ohio, is constructed of a light steel frame mounted on four swivel casters.

Dolly can be held rigid in any position by means of floor locks provided for that purpose. It is operated by a single foot lever.

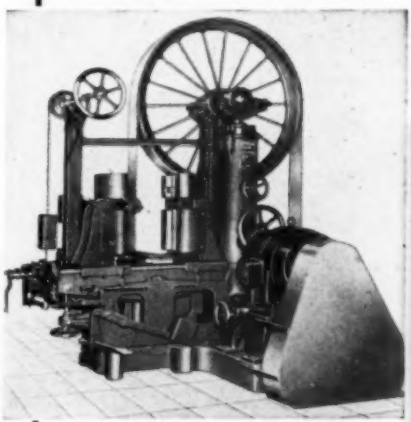
STEEL HANDLES FOR WOOD BOXES

The Washburn Company of Worcester, Massachusetts and Rockford, Illinois announces a new handle for wood ammunition boxes. This handle, designed by army ordnance is strong and safe. It is quickly assembled by nailing under end cleats. It is recommended for use for any special wood boxes for defense requirements. The handle has a tubular grip, complete handle, olive drab enamel finish.

For prompt action on designs, quota-

improved . . .

for LONGER LIFE, GREATER ACCURACY



McDONOUGH 54"

VERTICAL BAND RESAW

CHECK these new features . . .

- Variable Speed Gear Transmission
- Hardened, cut steel mitre drive gears on feed rolls
- Electro-filmed gears and shafts

For complete information on all new features write for Bulletin 54

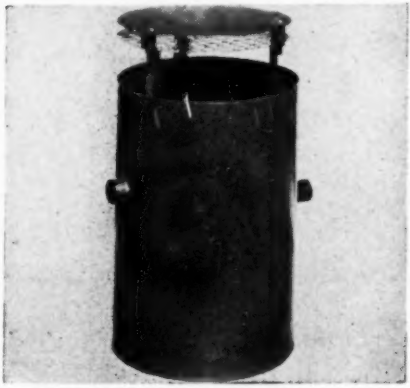
McDONOUGH MFG. CO.

1503 Galloway, Eau Claire, Wis.

tions, deliveries of defense work, write to the Washburn Company, 28 Union St., Worcester, Mass., or 1802 Preston St., Rockford, Illinois.

STEAM HUMIDIFIER

The Econaway steam humidifier, made by the Econaway Manufacturing Co., 722 N. Main St., Bellevue, Mich., is a unit which provides moisture as necessary for the protection of materials. It is used in furniture factories, box factories and any place where moisture control is a necessity.



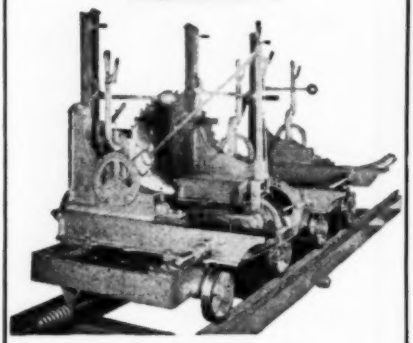
The humidifier consists of a steel tank rigidly welded and a specially designed deflator that spreads the steam fog which evaporates into moisture. One humidifier will supply enough humidity for 6,000 cu. ft. of room space.

SPREADER HEAD ROLLS GLUE ON FLAT SURFACES

A new and unique type spreader head for applying cold glues to flat surfaces has been introduced by Gluetools, Inc., 1930 N. Meridian Street, Indianapolis 2, Indiana.

The spreader is constructed with a knurled roller applicator which rolls

ENTERPRISE Sawmills are CUSTOM-ENGINEERED to YOUR REQUIREMENTS



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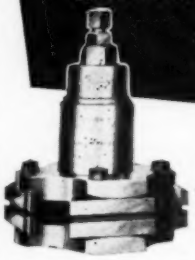
cuts across the entire width of the pattern!



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SHIMER

the glue onto the surface as it is sprayed from the Gluetool air pressure tank through the spreader head outlets. Special pressure type automatic control valve in the spreader head permits exact control for the flow of glue. As a result, glue can be applied accurately and with a uniform ribbon type spread, we are told.

Simply by loosening a screw the roller can be removed for easy cleaning. At present the roller type head can be obtained for spreading glue in widths up to six inches. This new method of flat surface spreading is ideal for wood.

ALUMINUM NAILS

The Red Cedar Shingle Bureau has officially approved the use of aluminum

CHILDS
2" x 6"
MOULDER
Ball Bearing — All Electric

Only
$2,995.00
Complete

MOTORS: 10 H.P. Driving Motor
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FEEDS & SPEEDS: 6000 RPM Cutterheads 25-35-55-75 FPM

WEIGHT: 2,750 lbs.

★ Heads on this machine are adjustable in two directions—making for easy set-ups. Top and side chipbreakers are adjustable. All heads are self-centering and shaper collars may be used in all positions. Heads may be jointed and attachment is available. Dust hoods are standard equipment.

Write for literature, TODAY!

W. P. CHILDS MACH'Y CO.
Atlanta, Georgia

nails to prevent nail staining of cedar shake and cedar shingles, it was announced by Nichols Wire & Aluminum Company, Davenport, Iowa.

The Red Cedar Shingle Bureau's approval of aluminum nails came after the Aluminum Research Laboratories of New Kensington, Pennsylvania, had completed extensive tests on aluminum alloy nails in red cedar siding, shakes and shingles.

"In every instance it was found that aluminum alloy nails were highly resistant to attack by the constituents leached from red cedar and did not react to produce unsightly stains," a Nichols Company spokesman stated.

LIFTING PRODUCTION RATE

Every day industry uncovers new examples of companies who are learning the truth to the old saying, "There is no monopoly on ingenuity." A little over two years ago, Millwork Distributors Ltd. of Edmonton, Alberta realized that their production of wood subassemblies such as doors, door frames, window frames, etc., was having a hard time keeping up with growing demands. A little ingenuity was invested in the problem and today the company finds themselves realizing ever-increasing dividends.

Millwork Distributors initiated a survey to determine whether additional plants were necessary, or if methods could be improved within the existing plant. Surprisingly, the survey showed that no major capital investment was required.

Three disclosures were made:

1. One of the bottle necks in the production setup was in the movement of material between departments. This could readily be solved with the addition of more material handling equipment, but actual ordering was withheld so that all recommendations could be studied in relation with one another.

2. Another of the findings showed that an addition of a few hundred square feet of floor area would immeasurably benefit crowded conditions in the plant The company's first investment in ingenuity found that this space could be provided quickly and economically by building mezzanine floors under the high ceilings found in most of the plants. This was almost discarded because at first glance it only seemed to complicate their handling problem further. "If we use this inexpensive space, how do we get materials up to the mezzanine floors?" was the question asked. Action on this point was also delayed until the overall story was complete.

3. Along with this problem of increased production came its companion problem of increased storage space. This could also be handled by using the space up to the ceilings for vertical storage and thereby saving floor space.

With the complete picture now before them, the company could intelligently plan their program.

Since the fundamental problem consisted of transporting, lifting, and tiering, the application seemed tailor-made

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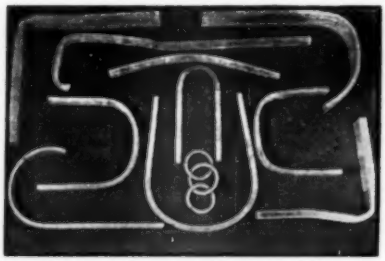

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Exceptional opportunity with an internationally known concern. State age, experience, salary expected in first letter.

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INSTANTLY INTERCHANGEABLE ELECTRODES, BOTH POINT AND SURFACE TYPES

Wood in all shapes, sizes; smooth, rough; flat, curved; thinnest veneer and heavy timbers — all tested with same meter.
Moisture gradients quickly detected and determined without cutting.
Species correction usually negligible regardless of density.
Available in very wide ranges, from below 3% to above 120% moisture.
Small, light, simple, battery-operated.

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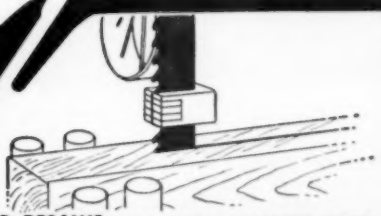
BURTON STEEL HEAD BAND SAWS

Burton Saw Co.
WORCESTER 8, MASS.



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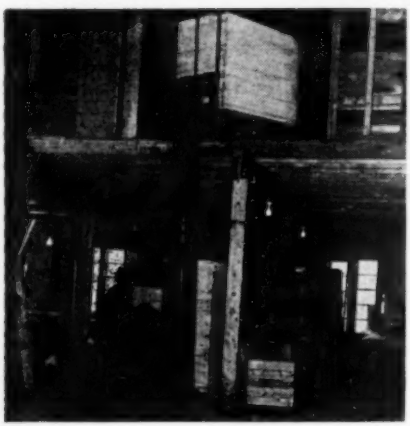


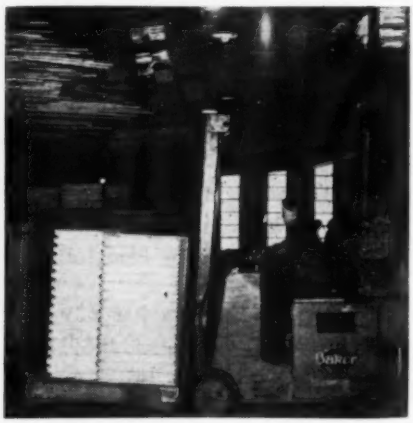
for high-lift fork trucks. Other factors which "clinched" the job for the fork truck were maneuverability, absence of fumes and fire hazard, smooth control of lifting and lowering, low maintenance costs, and the big one—versatility, one piece of equipment for all jobs.

In July, 1949 a Baker 2000 lb. fork truck with a special 144" lift was purchased and installed. This proved to be the company's second investment in ingenuity, because the new operations were performed so efficiently that it wasn't long before additional duties were being assigned just to keep the truck busy.

Examine the record established in two short years.

Semi-finished products are transported between departments on the main floor.

Figure 1. Loads are lifted to the mezzanine floor for painting. Figure 2, delivery to storage or shipping. The lifting and lowering operations are so smoothly controlled that bulky loads, some 80" high, are raised and delivered to mezzanine doorways only 84" high. When these doorways are 12' above the floor, ease of operation of the truck's controls is very important.



Finishing materials are tiered in storage. By adding wooden 4 x 4 stringers to the forks light bulky loads are handled with greater stability when the load exceeds the rated load length but, is still within the rated load capacity.

Raw materials are unloaded at receiving and stock piled at various locations. Highway transports and local delivery trucks are loaded. Even after all these duties were assigned, the truck is in use only four to six hours per day! And only one hour per week is needed for maintenance!

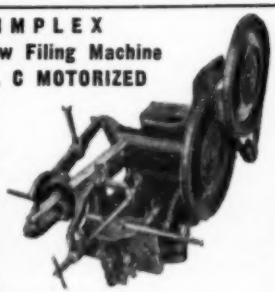
"NEW STANDARD" EXTENSION DRAWER SUPPORTS

For more useful drawers

"New Standards" offer full extension of a drawer at an economical price. Made up of four parts, two of which are mountable within the cabinet, the other two parts set into the mounted pieces. The drawer which is not attached to any of the parts becomes a "free floating" unit within the supports. 10 standard sizes fit a wide range of drawer lengths from 7¾" to 36". Write for detailed catalog showing economies and adaptations.

The Extension Drawer Support Co.
2319 W. Washington Blvd. Los Angeles 18, Calif.

SIMPLEX
Band Saw Filing Machine
MODEL C MOTORIZED



The Simplest machine of its kind made, works automatically and requires no attention after being started. Files old saws with uneven teeth as perfectly as new saws, teeth being filed evenly and to a uniform height.

All movable parts are operated by but **one shaft** — everything **simple, durable** and **dependable.**

Self-opening Vise and new improved slide and bearing. Solid construction — no vibration.

Requires but a few moments to adjust the saw and the machine.

Will take in band saws ⅛"—1½" in width with spacings from $\frac{1}{16}$"—⅝", point to point.

Uses ordinary 6" taper saw files.

Plug Into Any Electric Light Socket

Equipped with heavy duty ¼ H.P. single phase A.C. 60 cycle 110 volt ball bearing ventilated open type motor. Driven by two V belts.

Cord, plug and switch supplied as standard equipment.

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A Truck for Every Need

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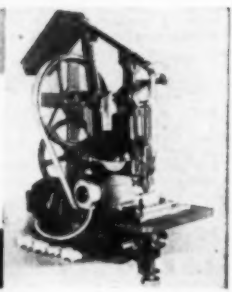

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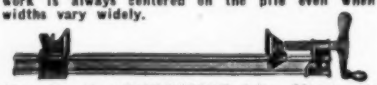
"Jorgensen" PILING CLAMPS

Style No. 2100 "JORGENSEN", for the most economical and convenient method to increase your edge-gluing capacity. More glued stock per pile—work clamped on both sides prevents buckling—all clamping done on same side of pile—any thickness of stock, any length, width, or height of pile without special fixtures or trucks. The work is always centered on the pile even when widths vary widely.



Style No. 70 "JORGENSEN" I-bar Clamps are a long-time favorite; the Multiple Disc Clutch zips to position, holds securely, releases easily without notches or other deformity in the bar. Carefully designed and manufactured for longest service—at no extra cost to you.

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ADJUSTABLE CLAMP CO.
"The Clamp Folks"
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WOOD CASKETS IMPROVED BY METALLIZING PROCESS

Protection of hardwood caskets by a metal-working process known as "metallizing" is now assured casket manufacturers. According to an announcement by the Metallizing Company of America, 3520 W. Carroll Ave., Chicago, this additional finishing operation assures greater surface durability as well as greatly improved casket appearance.

Long used in the metal-working industries for such jobs as corrosion prevention and rebuilding of worn-out shafts and other vital metallic componets, the "metallizing" process was recently revealed by a California casket manufacturer to be an excellent method of low-cost preservation of the finish on his wooden caskets. In this process, molten wire of the desired-metal is sprayed under high pressure on the surface to be treated.

The West Coast manufacturer was experiencing considerable difficulty with redwood, which absorbed enough moisture to cause the casket butt ends to spread, After the casket had been lacquered and the wood dried out, the corners then spread and cracked the lacquer. This condition created an entirely unsatisfactory appearance.

It was found that by spraying zinc on the butt ends, the wood received additional strength. The zinc being elastic and therefore impervious to cracking, the wood in the casket was effectively protected. The cost of the metallizing operation was said to be minute in comparison with the end results.

SOUTHERN REPRESENTATIVE

Dr. Thomas H. Cook, vice president in charge of the Adhesives Division of the National Casein Company, announces the appointment of Earl (Red) Gattin as representative for the company in the mid-South. Mr. Gattin will cover the states of Mississippi, Louisiana and Arkansas.

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BAND SAWS

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SUPREME BAND SAWS cut faster . . . have increased cutting capacity with minimum breakage! Present day high speed equipment demands Supreme Saws. Free from kinks and imperfections. Made from the finest Special Nickel Alloy Steels, tempered for toughness . . . to stay sharp! There is a Supreme Band Saw for every industry . . . for every material. Special purpose saws are made to order.

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Our modern testing facilities and experienced wood technicians can help you on both civilian and Defense products.

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Hamilton
FACTORY TRUCKS

ESPECIALLY DESIGNED FOR THE WOOD-WORKING INDUSTRY

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Cap. 1500 lbs.

Heavy Duty Wheels & Casters

Standard sizes 24" x 48"—30" x 48"—30" x 60". Special sizes and styles to order—capacities up to 7500 lbs.

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NOW AVAILABLE — in 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4" sizes in kiln dried Beech, Hickory and Hard Maple. Spiral grooved. Dowel Rods made from Hard woods in sizes 3/16" through 1-7/16" are now also ready for shipment. Let us quote on your requirements. Prompt Shipment.

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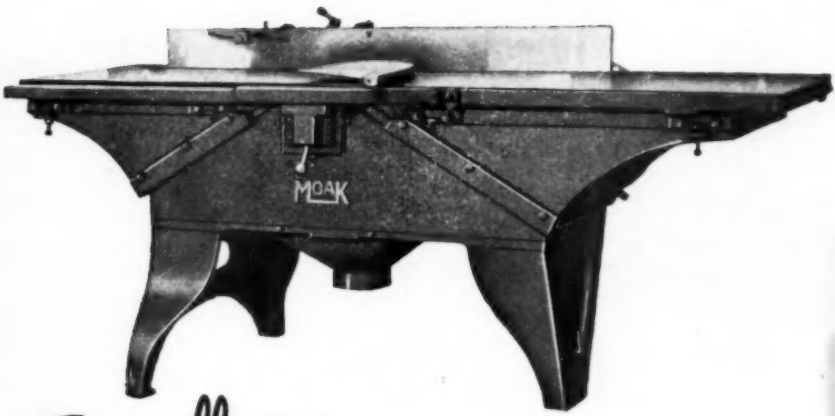
THE LOSS OF AN EAR OR A HAND WAS THE SUMMARY PUNISHMENT METED OUT DURING THE MIDDLE AGES TO THE MASTER OR WORKMEN WHO PALMED OFF AS "FIRST CLASS," A MEDIOCRE JOB.
IT WAS THE PHENOMENAL SUCCESS OF THE "SILENT" BICYCLE CHAIN DEVISED BY HANS RENAUD OF ENGLAND IN 1879, THAT INSPIRED THE DEVELOPMENT OF THE CHAIN TRANSMISSION BELT SO POPULAR TODAY.
IT WAS WHILE WORKING OUT CLOCKMAKING PROBLEMS THAT MANY OF THE FUNDAMENTAL PRINCIPLES OF MECHANICS WERE EVOLVED. AMONG THE CLOCKMAKERS WHO CONTRIBUTED TO SCIENCE WERE NICHOLAS FORQ, FRENCHMAN, INVENTOR OF THE PLANER IN 1751; WARRINGTON, WHO, IN 1768, HELPED DEVELOP THE ARKWRIGHT LOOM; AND HUNTSMAN, PIONEER PRODUCER OF CRUCIBLE STEEL.



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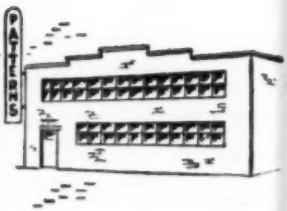

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Tungsten steel knives are fitted in the high carbon alloy steel cylinder head, the head mounted in self-aligning ball bearings enclosed in dust-proof housings. Available in sizes for planing 12″ and 16″ lumber; equipped with ½″ rabbeting groove, adjustable bevel gauge.

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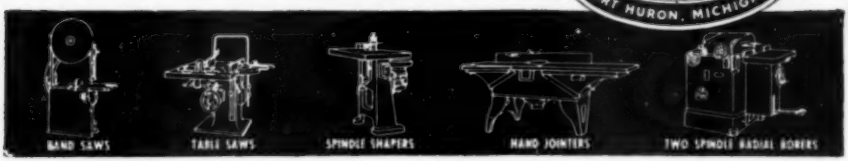

The Market Place

Rates for Classified Advertisements

Lists of Used and Rebuilt Machinery, either For Sale, Wanted, or For Exchange, set in uniform style, will be published in the Classified Section at the rate of $7.50 for name and address and a five line advertisement. For additional lines, only 75c per line.

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Write directly to those offering the machine for sale, for prices and full descriptions. If what you seek is not advertised, write Hitchcock Publishing Company, 222 E. Willow Ave., Wheaton, Ill., making known your wants on either new or used machinery and the publisher will gladly assist you.

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THE "HART" LINE

Largest stock of used machinery in America, many ball-bearing, motorized. Substantial savings. Prompt shipment. Write for our list. We equip plants completely. We also buy complete plants or individual machines.

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Phone RAndolph 6-4970

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Band saw, Parks, 16 in., M.D., $75.
Borer, Andrews 60 in. 5 spindle Horizontal, $350
Borer, Andrews 42 in. vertical, 4 spindle, $350
Dowel Sticker, F & E No. 1, $350.
Jointer, Egan 8 in. rd. head, light, $100.
Jointer, Crescent 24 inch, $150.
Molder, Smith 8 inch 4 side, $750.
Molder, Smith 6 inch 4 side heavy M.D., $650.
Mortiser, F&E vertical, HC, $175.
Mortiser, Greenlee Horizontal, HC, $125.
Mortiser, New Britain No. 7 chain saw, $400.
Mortiser, Parks light vertical HC, $75.
Motor, BB., 1 HP., 3 Ph., $35
Planer, Whitney 30 inch round head, MD., scr. roll, double, $750.
Radial saw, Multiplex 1½ HP, 3 phase, $200.
Saw; F&E No. 291, dbl. auto., $600.
Saw, Hamilton 20 inch heavy duty, Variety, $175.
Saw, DeWalt Radial 3 HP, $250.
Shaper, Buss No. 8 Dbl., MD., BB., $400
Sticker, Fay 6 inch 3 side, $250.
Tenoner, American, 2 copes and cutoff saw, $350.
Veneer Dryer, Merritt.

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Arbutus Baltimore 29, Md.

Carving spindle machine
Chain hoist, Harrington Peerless, 10 tons
Chain hoist, Harrington Peerless, 5 tons
Clamp 24" with 6' opening, Hand Mfg. Co.
Door clamp, American
Jointer, 12" round head, Babbitt bearings
2—Nailing machines, Doig, 15 track-motor, open back
Nailing machine, Doig, 12 track-motor, closed back
Nailing machine, Morgan, 9 track-motor, closed back
Planer, two head, 24" round head Babbitt bearings
Pocket machine for window frames, 2 h.p. motor
Pulley machine for window frames, 2 h.p. motor
Sander, wood constructed, 24" drum, 3 h.p. motor
Sander, belt, 3 h.p. motor, Beach Mfg. Co.
Saw, table, 3 h.p. motor, Babbitt bearings
Saw, DeWalt, 3 h.p. motor
Saw, DeWalt, 5 h.p. motor
Saw, Band, 36", 5 h.p. motor, 18' blade
Trucks, lot hand
Trucks, lot four wheel, wood
Trucks, lot four wheel, steel
Tongue & groove machine, pulley drive
Tongue & groove machine, two 5 h.p. motors attached Direct Drive, Mereen Johnson Mchry. Co.
Shaper, single head, belt drive, ball bearing
Wire stitcher, No. 14 Boston

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Dovetailer, Dodds 10-spindle, M.D.
Cutter Grinder, Mattison No. 231, 98% new
Glue cooker, 10-gal. Francis steam
Glue jointer, Jenkins No. 3CDA motorized
Hand jointer, 6" Wallace bench type, m.d.
Lathe, 30" Mattison No. 55-C, M.D.
Moulder, 6" Vonnegut 4-head, with hopper
Sander, 54" Nash No. 77 2-Spdl. auto. turning
Swing saw, 6' Reliance with 3 HP motor dr.
Woodworker, Sidney Universal, five machines

FOR SALE

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Air Compressors, various sizes
Air Compressor, Gardner Denver 10x10 Twin dmd.
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Band saw, New Crescent 20" bb. dmd.
Band saws, New Moak 36" bb. dmd.
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Borers, McKnight No. 88 dmd.
Borers, Indiana 15 H 2 spdle. dmd.
Borer, Root 2 spindle horiz., dmd. style "K"
Boring & sawing, McKnight 26F dmd.
Clamp, Handy No. 71 Revolving Case Clamp
Clamp, Lancaster Bed panel air clamp
Clamp, Taylor, 40 sec. 4 clamps, 7 ft.
Clippers, Coe 88" bd. & motor
Clippers, Sheridan 65" dmd.
Dovetailers, Dodds, 10 and 20 spindle.
Frequency changers, 1½ KW and 50 KW dmd.
Glue jointer, F&E No. 429, bb. dmd.
Glue jointer, Jenkins No. 343A bb. dmd.
Jointer, Amer. 12" bb. dmd.
Jointers, New Moak 12", bb. dmd.
Lathe, Yates No. 74 bb. dmd.
Mortiser, Sidney, single spindle pb. bd.
Mortiser, Greenlee No. 228 Vert. bd. & motor
Mortiser, W&M No. 288—5 spdle. Horiz. dmd.
Moulder, Amer. No. 35—10" bb. dmd.
Moulders, Yates-Amer. C-55—9" bb. dmd.
Moulders, Yates-Amer. C-89—6" bb. dmd.
Planer-Matcher, Yates A1-15"x6" rd. hds. pb. bd.
Planers, New Crescent 24" bb. dmd.
F & E No. 156 36x7 DMD head
Redrier, Merritt 12 plate 36x72
Resaw, Connell & Dengler Circular pd. bd.
Router, Defiance, 2 spindle bb. dmd.
Routers, Carter, floor type, Hvy. duty, electric
Routers, Onsrud W240, bb. dmd.
Router, Yates-Amer. U9 bb. dmd., High Speed
Sander, Berlin, 31" 3 drum, roll feed bd.
Sander, Mattison No. 134, pb. bd.
Sander, New Jefferson, hand block, bb. dmd.
Sander, Smith 49" 3-drum endless bed
Sander, Oakley Model H, 12" Horiz. Drawer, bb., dmd.
Sander, B & M 14 flat sander & motor
Sander, 48" double disc, dmd.
Sander, W&M No. 171 Hand Block, pb. bd. & Mtr.
Sander, W&M No. 312 Edge Belt, b.b., dmd.
Sander, Yates 213, 49" 2 drum endless bed, dmd.
Sander, Yates No. 427 Tand Block pb. bd. & Motor
Sanders, F & E 60" 3 drum roll feed, dmd.
Sanders, McKnight sgl. drum 24"x16" dmd.
Sanders, Nash No. 25—10 spdle. dmd.
Saws, Famous, cutoff, bb. dmd.
Saws, DeWalt cutoffs
Saws, New Delta-Crescent 12" tilt. arbor, dmd.
Saws, New Multiplex, 40A & 50A
Saw, Beach Dbl. Cutoff, 8' bb. dmd.
Saws, Buss Tilt table Variety bb. dmd.
Saws, Yates G5 gang rip, pb. bd.
Shaper, Defiance dbl. spdle., bb. dmd.
Shaper, Whitney No. 380, dbl. bb. dmd.
Shapers, New Moak single spindle, bb, dmd.
Shapers, Greenlee No. 180 dbl. bb. dmd.
Spray Booths, 4—8x8x7 DeVilbiss, complete
Spray Booths, 3—7x8x7 DeVilbiss, complete
Spray Booths, 2—6x8x7 DeVilbiss, complete
Sticker, Williamsport 2 side, w/plow & boring attachments, pb. bd.
Sticker, American No. 1, 1 side, 6" pb. bd.
Taping machines, Dennis No. 2
Tenon Heads, single & double end.
Tenoner, Houston, Sgld. End. w/copes, bd. pb.
Tenoner, NEW GREENLEE No. 545, bb., dmd.
Tenoner, Hayes 6 ft. dbl. with copes, pb. bd. & mtr.
Tenoner, Jenkins No. 95, bb. bd. & Motor
Veneer Press, Francis 84x48
Woodworker, Crescent, pb. bd.

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Blower, exhaust, Sturtevant 24", B.D.
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Clamp, 8'x4' sash-door, Hermance
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Double cutoff saw, Amer. No. 3, B.D.
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Nailer, Morgan No. 9, closed back B.D.
Planer, Berlin No. 153, sgl. 30"x7"
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Reeves Variable Speed Transmission, Size 6¾ E.
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90" Capital Carriage and Cap
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This machine has not been used

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Fully Equipped, Low Labor Costs, Low Taxes,
Very Low Rental
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Veneer Jointer Dennis 1000, used 6 months. Perfect condition, perfect performance.

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DUBUQUE, IOWA

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Yates G-2 Self Feed Rip Saw. M.D.
Greenlee No. 371—6" Boring Machine, M.D.
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Many other rebuilt machines.

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NEW KORNAU HOLLOW CHISEL MORTISER
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American Fig. 5063—40" Bevel Band Saw with Power Feed, Motor Dr. 10 h.p. Geared.

ERVIN MACHINERY CO., INC.
124-26-28 BOULEVARD OF THE ALLIES PITTSBURGH, PA.

OLIVER No. 71 automatic borer with two double spindle Universal heads.
GREENLEE No. 369 Vertical Multiple borer.
WHITNEY No. 134 Double Spindle Shaper, 120 cycle.
PORTER Horizontal Spindle Sander

MICHIGAN FRAME COMPANY
1600 Marshall S.E., Grand Rapids 7, Mich.

FOR SALE

Goodspeed Gale Boxboard matcher with hydraulic press, gluing attachment and equalizer. Motor driven. A production unit in excellent condition. may be seen in operation.

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c/o WOOD WORKING DIGEST
WHEATON, ILLINOIS

FOR SALE

Yates 36", m.d. Band Saw
Ekstrom Carlson No. 240 Router, disc drive
Yates-American Band Rip Saws (8) Nos. 281 and 282

DAVID V. LUNDBERG
3415 Highcrest Blvd. Rockford, Ill.

buyers' service

AVAILABLE WITHOUT CHARGE TO OUR READERS

If you will list below the wood-working machines, supplies or machine shop equipment in which you are interested and mail this page to us, we shall be glad to refer your needs to the manufacturers or others in position to serve you. Replies will come from them — not from us.

If you have any special shop problems let us have the details. Often we can make helpful suggestions.

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MUST MOVE QUICKLY
1951 MODELS

The latest improved machines, all direct motor driven, have had only about sixty days' usage. They must be moved quickly owing to customer liquidating the business. The machines are mentioned briefly — write for details.

BUSS TYPE L 30" SINGLE SURFACER
MATTISON No. 202 STRAIGHT LINE RIP SAW
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HENRY 48" RADIAL ARM SAW
NORTHFIELD 16" JOINTER
DELTA 12" TILTING ARBOR SAW
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AMERICAN 30" JOINTER AND FEEDER

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No. 276 MATTISON 6" all electric moulder. Complete with 15 HP motors 3/60/220 and 40 KW Frequency changer.
Very large assortment of cutters, heads, etc. Like new, used less than 6 months.

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Jenkins No. 126 — 3 in 1 Machine
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New Delta 20A-30A-40A-50A Ball Bearing Radial Saws
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AMERICAN 12" Sticker, bd
OLIVER 30" Single Surfacer, BB, DMD
TOWSLEY 26" Single Surfacer, BB, DMD
ROOT 6' Horiz. Boring Machine, BB, DMD

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Jamestown, New York

"No business can live in a community on the chilly basis of a paying guest and be taken to the hearts of that town. I believe the practice of community participation should be universally followed."-**D. A. Hulcy, president, Chamber of Commerce of the United States.**

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WHITNEY No. 32—30" Single surfacer (15 HP Motor) equipped w/Electric Grinder & Jointer

WOODS No. 450—30" Double surfacer with sectional rolls; 6-knife Cylinders—jointing devices—Electric knife grinder; bottom head with new BB type-top head babbit bearing. Motor coupled to counter shaft.

SANDER

H. B. SMITH—42"—3 Drum Endless Bed Sander—direct motor driven

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JENKINS No. 95 DE Tenoner with Dado Arbor-scoring saws Blower System; Tenon & Cope Heads complete with Heads & Cutters

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TAYLOR—7½'—60 Section Clamp Carrier with 6 clamps per section; 3¼ high-jaws (air power driven)

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MACHINERY GUARANTEED

1—American Jointer, 32", Self Feed, M.D.
1—Double Surfacer, Berlin 186, M.D.
2—Palmer Glue Reels, 10 ft. Long, 16 Spokes
1—Bell No. 8 Dowel Driver, 8 Chute, D.M.D.
1—Jointer, 16" with Self Feed, M.D.
1—American Embosser, M.D.
1—Single Chucking Machine, Auto. Feed, D.M.D.
3—Handy Chair Clamps, U2, Hand Operated
1—Chair Leg Leveler, M.D.
1—Bostitch Stapler, No. EHA, M.D.
1—Rogers Band Saw Sharpener, Type CC
1—Edge Sander, 10 ft., M.D.
1—Mattison Lathe, M.D.
All Machinery Guaranteed in Running Order.

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D E TENONER, WILKIN-CHALLONER 78x 24 ball bearing d.m.d. 5 h.p. tilting cut-off, copes and tenon heads.

DOUBLE SURFACER BUSS No. 88-30" ball bearing d.m.d. like new

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Andrews 12', 5-spindle, motor driven, power feed borer $2800.00

Greenlee No. 238-C Mortiser, for chisels up to 2½" square, timbers up to 18"x20", with two adjustable boring spindles, belt driven $3500.00

Greenlee No. 210 Vertical Hollow Mortiser, for chisels up to 1½" square, belt driven $1500.00

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MOULDER Special!

Vonnegut 12" ball-bearing, electric moulder, serial 12280, with 15 hp direct-connected top and bottom head motors and 7½ hp side head motors. With separate 2-speed feed motor. Dust hoods, jointers and full set 12" round heads and extra 12" top and bottom square heads and variety of extra milled-to-pattern heads. Centralized Alemite automatic lubrication. Rebuilt and guaranteed. FOB Memphis. (Subject prior sale). **$10,500.**

WILCO MACHINE WORKS
1301 N. Hollywood St., Memphis 8, Tenn.
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WANTED
DOUBLE END BLIND SLAT TENONER

Size of Slat—1¼"x¼"
To cut slats 3" to 20" in length.
Hand or automatic.

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Devereux Products Co.
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MANUFACTURERS WANTED

Convert your narrow wood edgings into attractive, outstanding, easily constructed "Slidaway Towel Holders," attachable to any surface. Dipped or sprayed finish. Woolworth interested; "Considerable Merit." We will sell them, your billing optional. Write for B.P., etc.

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215 W. LARCH MUSKEGON, MICH.

MACHINERY WANTED

SINGLE MACHINES OR COMPLETE PLANTS—No machine too small or plant too large to interest us. Will pay spot cash. Advise what you have for sale.

J. LEE HACKETT CO.
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Appraisers • Liquidators • Rebuilders

WANTED

Production Supervisor by quality television plant located 50 miles from Philadelphia. Must be thoroughly conversant with drawings, construction and production methods. Permanent position with real opportunity for advancement.

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TECHNICAL SALES SERVICE ENGINEER
in established national organization for a man with thorough knowledge of plant production practices in wood finishing. Sales or contact experience desirable. Age 28-35. Salary open. Please send resume of personal and experience background. All replies confidential.

Address replies to Box 653,
c/o WOOD WORKING DIGEST
WHEATON, ILL.

NEW MANAGER AT GARDNER-DENVER

Carson L. Ruyle has been appointed advertising manager of the Gardner-Denver Company, Quincy, Illinois. according to a company announcement. Mr. Ruyle assumes the position formerly occupied by Lt. Damon P. Tunnicliff, who has been called to active service in the Navy and who is assigned to the destroyer "U.S.S. Power" for duty in the Newport, Rhode Island area. He has capably filled the position of advertising manager of Gardner-Denver for the past five years.

DRY KILN COURSE

A two-week demonstration in kiln drying is scheduled for Feb. 25 - Mar. 7, 1952. Twenty-sixth since 1946 to be held at the U. S. Rorest Products Lab., Madison, Wis.

The course is directed toward practicing dry-kiln operators, seasoning superintendents and others in furniture, lumber, millwork. Instruction will place special emphasis on new drying schedules with actual application, including moisture equalization and stress relief, conducted.

Fee of $200 per man covers enrollment and laboratory expenses. Enrollment limited to 40. E. F. Rasmussen is heading up the course, assisted by John McMillen and Robert Youngs.
Further details may be had by writing direct.

PREDICTIONS FOR '52

A spokesman for the United Lacquer Manufacturing Corp., Linden, N. J., says that 1952 should be a banner year for the paint industry. He continued by saying that sales of paint will jump 20%. Increasing recognition by both manufacturers and the government that greater use of paint for protective purposes is one of the best long-range economy measures is the factor that will help create the 20% boost in sales.

More women will enroll in engineering courses during 1952 to graduate as professional engineers, we are told by Technical Advisors, Builders and Engineers, Inc. Production equipment and methods will be streamlined; a new conception of long-distance freight hauling will gain momentum and the battle of military versus civilian production will continue.

✓ CHECK ✓
MONICAL'S REBUILT LISTINGS
FIRST
FOR THE LATEST (AND BEST) IN WOODWORKING MACHINERY

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PARTIAL LIST

✓ BORERS
Valley City 2-spindle horizontal
Andrew 8-ft. horizontal
Root BM vertical

✓ CLAMPS
Taylor 30-section, 8' caterpillar type
Billstrom 39-section, 8' caterpillar type
Billstrom 29-section, 10' caterpillar type
No. 96 Handy case clamp
Palmer 6" wheel type clamp carrier
New Handy Nos. 54 & 55 chair clamps
Union revolving case clamps

✓ JOINTERS
Porter 30" with 4-post feeder
Dennis veneer jointer
Hand jointers, 12 to 24"
Chain-feed, Meyers, Fay & Egan, Diehl, and Jenkins
Jenkins saw type veneer, B.B., 6 & 8'

✓ LATHES
No. 57D Mattison 40" lathe

✓ MOULDERS
No. 276 Mattison B.B., direct motor-drive
American 4" babbitt-bearing, belt-drive
Fay & Egan 7" plain bearing, 4-head
Woods 8" plain bearing, belt-drive
Herman No. 50, 8" ball-bearing

✓ PLANERS
Buss 30, 36 & 44" single; 30" double
Whitney 30" single
Whitney 36" double
Porter No. 405 single
Oliver 30" B.B. Planer

✓ SANDERS
No. 10 Nash, 6-spdle.; No. 25, 10-spdle.
No. 171 Wysong & Miles moulding
Yates 3-drum endless-bed 43 and 30" coupled motor
Smith ball-bearing, motor-driven, 3-drum
Mattison 3-drum Endless bed, B.B., M.D.

✓ SAWS
Diehl No. 75 chain-feed
Irvington cut-off
No. 207 Mattison chain-feed rip
Bell Nos. 12C and 12A
6 & 7' Buss and Hall & Brown hand-feed dbl. cut-off
Wilkin-Challoner double cut-off
Whitney direct motor, tilting-arbor
Yates 6-2 Ripsaw

✓ SHAPERS
Porter double-spindle
No. 200 Porter single-spindle
Buss and Whitney double-spindle
Whitney automatic

✓ TENONERS
No. 96 Jenkins ball-bearing, belt-drive
Fay & Egan single end
Eaglesfield saw type ball-bearing

✓ MISCELLANEOUS
No. 928 Covel-Hanchett automatic circular saw sharpener
No. 300 Francis flat plate edge gluer (new)
6, 8, and 12-plate Merritt redriers
Nos. 7 & 8 Bell dowel drivers and gluers, motor-drive
Francis 30x72" hydraulic veneer press
Salstrom 24-spdle. multiple carver
Wysong & Miles electric multiple horizontal mortiser
Onsrud S-175 automaitc shaping attachment for Onsrud W-240 router
Sheridan 36" veneer clipper
Loeffler toilet seat sander

SPECIALS FOR THIS MONTH
No. 55-C Mattison Ball-Bearing Motor-Driven Automatic Turning Lathe.
No. 177 Yates 30" Roughing Double Planer.

MONICAL MACHINERY COMPANY
240 WEST LEONARD ST. **GRAND RAPIDS 4, MICHIGAN**

"If it's for Woodworking . . . We Have It"

BAND SAWS: Walker Turner 14" B. B. M.C.
American 20"
American 40" Angle Ship Band Saw
Crescent 20" Ball Br. New
Northfield, 20" M.D. new
Lehman 30" Bab. Br. $125.00
Crescent 36" belt or motor
Fay & Egan No. 345 36"
Tannewitz 36" 7½ h.p. Motor D.M.D.

BAND RESAWS:
Chicago 40" Vertical $1250.00
Connell & Dengler 60" Vertical, $1800.00
Yates V-54" Vert. Band Resaw
7" Blades, 40 hp motor
Yates V-4 54" Vert. Bab. B. M.D. takes 7" wide blades. Filing Room Equip. if wanted.

BORING MACHINES: Fay & Egan No. 190 Single Spl. Vert.
Andrews 32" vert. multiple
Andrews 32" Double Col.
Root Single Spl. Motor on Spl.
Root 2 spl. Hor. late type
Dennis Sgl. Vert. Universal
Greenlee Post Borer
Moak 2 spindle Horizontal Radial Dowel

BOX MAKERS MACHINERY:
Hall & Brown Box Board Matcher
Tide Box Makers Rip Saw M.D.

CLAMP CARRIER: Handy 12 ft. 6 wheel 18 leaves 6—31" clamps each 95% New

CLAMPING MACHINERY: American fig. 8853 8 ft.
Rowley & Hermance Door Clamp 3½ x 8 ft.
Lancaster Pneumatic Chair Clamp
Black Bros. Chain Clamps
3000 Spring Clamps No. 2 and No. 3
Greenlee No. 602 Q. A. Sash Clamp
Handy No. 100 End Clamp 78" cap.
Handy End Clamp cap. 70"

DADO SAWS: Fay & Egan No. 5 C.O. and Dado
American No. 1 Dado Saw Auto.
Hall & Brown No. 134 Comb. C.O. Dado Saw Pwr. Fd.

CUT OFF SAWS: Oliver No. 94-D St. Line C.O. Saw with Roller Tables 95% New
Greenlee No. 453 Auto. Railway C.O. 7" cap.
Comet Timber C.O. 10 h.p. 44" blade
Swing Cut Off Saws (several)
Fay & Egan Table C.O. Saw

DOWEL MACHINES: Fay & Egan No 406 Rod Mach.

JIG SAWS: Oliver No. 173-B Ball Br. Self Contained Motor built in. New at Bargain Price
Beach No. 1 Tilting Table Scroll Saw
Jones Superior M.D. Self Contained

JOINTERS: Crescent 12" B.B. 4 Knife
16" Fay & Egan No. 316 B.B. M.D.
Smith 16" 4 knife Jointer
Fay & Egan 20" rd. hd. Jointer
Fay & Egan No. 316 20" Rd. Hd. M.D.
Northfield (Late) 12" B.B. Motor on Hd.
Fay & Egan 24" No. 115 Belt or Motor Dr.
Moak 12" B.B. Jointer M.D., New

LATHE: Oliver 12"x5 ft. Sgl. Ph. Motor Headstock Goodspeed type AV-4 Automatic
Wood Lathe Beds 12" to 24" swing
Oliver No. 20—16"x8 ft. 4 speed M.D.
Goodspeed Variety Hand Feed
American No. 7, 32" Patternmakers

MORTISERS:
New Britain No. 4 Chain with H. C. Attach.
New Britain No. 7 Chain, Compound Table M.D.
Wysong & Miles No. 134 H. C. Auto. Feed
American No 20 H. C. Comp. Table M.D.
American H C. Horizontal Auto. Feed
Crescent Hollow Chisel Mortiser

MOULDERS:
American No. 3 Heavy 6" 4 side
Colladay 5" 4 side
Fay & Egan No. 207 7" 4 side
Fay & Egan No. 189, 10"x4-side $750.00
Hermance No. 50 8" 4 side Bab.
Hermance 10" 4 side
Fay & Egan No. 184 12" 4 side
American 2 side Sticker

NAILING MACHINES:
Grammes 4 track Cigar Box Nailer
Doig 2 track Cigar Box Nailer
Doig 3 track Close Back Nailer
Doig 11 track closed back

PLANERS—DOUBLE:
Berlin 30"x12" $750.00
American 26"x8" Double

PLANERS—SINGLE:
Crescent No. 224 24"x6" Feed M.D.
Fay & Egan No. 2 24"x6"
Fay 20"x6"
American No. 1 20"x6"
L. Power 24"x6" Motor coupled Head
Powermatic 12"x4" M.D.
Sidney 18"x8"
Solem 12" D.M.D.
Parks 12"x4"

PLANER & MATCHERS
L. Power & Co. No. 1 24"x6" 4 side Ball Bearing P. & M. w. all Belting. Used only 3 months.

RADIAL SAWS:
NEW MULTIPLEX RADIAL SAWS IN STOCK:
Comet 3 hp., 1 ph. New
Comet Cub ½ hp., 1 ph.
DeWalt 5 hp., 3 ph. G.E. type rebuilt
Walker Turner 3 hp., 3 ph.
No. 20-A ½ hp. single ph.
No. 30-A¾ hp. single ph.
No. 40-A 1½ hp single ph.
No. 50-A 5 hp., 3 ph.

RIP SAWS:
Falls No. 103 St. Line B. B. 15 hp. motor
Falls No. 103 St. Line B. B. Belt Dr.
Mereen Johnson No. 441 Gang
Fay & Egan No. 140 Power Feed
Greenlee No. 429 Power Feed
Fay & Egan Heavy Hand Feed 10" cap.

ROUTERS: Kelley Elect. Stair Router 3 ph.
Cincinnati Elect. Stair Router
Hunter Elec. Stair Router $100.00
Duro Elect. Floor Type
Portable 1 hp. and 2 hp. New

SASH COPERS:
American Foot Power Sash Coper
Electric Bench Type Sash Coper

SAW FILING MACHINERY:
Wardwell Band Saw Filer
Covel Resaw 4" Tension Rolls
Power Band Saw Setter

SAW TABLES:
Yates-American No. 0 Variety Motor Arbor
Crescent No. 2, 3, and 5 Universal

SANDERS:
American-Col. 42" 3 drive
American No. 15 24" single dr. Hand Feed
American No. 15 30" single dr. Hand Feed
Mattison No. 115 Variety Belt Sander
Porter Cable Oval. Spindle, M.D.
Porter 15" Disc M.D.
Wysong & Miles No. 171 Belt Sander
Yates American Comb. 15" disc & Drum M.D.
Yates No. 401 42" 3 Dr. Roll Feed
Wysong & Miles No. 303 Comb. 26" Disc

SHAPERS:
American No. 1 Sgl. Ball Br. M.D.
Delta Floor type M.D.
Crescent Single Ball Bearing M. D.
Crescent 8-2 B.B. M.D.
Fay & Egan No. 265 Dbl.
Fay & Egan No. 552 Single Ball Bearing M.D.
Double Spdl., B.B. Mtrs. on spdl., 3000 or 7200 rpm
Porter No. 105 B.B. M.D. (late)

TENONERS:
American No. 1 Copes and C. O. Saw
Crescent T-3 Electric Tenoner
Fay & Egan No. 2 2 copes
Powermatic B. B. Tenoner
Smith Sgl. Heavy Copes & C. O. Saw

TIMBER PLANER:
Yates P-12 12"x20" 4 side

VENEER CLAMPS: 5—38" 3 screws
4—29" 2 screws

ERVIN MACHINERY CO., INC.
124-26-28 Boulevard of Allies Pittsburgh, Pennsylvania

SUTTON GUARANTEED

BORERS

Greenlee 4 ft. vertical gang borer
Root Vertical Power Feed Gang Borer
Multiple Spindle Vertical Fay & Egan Borer
Amer. No. 2½ Single Spin. Horiz. Boring Mach

CLAMPS

Handy Revolving Case Clamp
Handy No. 103 Frame Clamp
Automatic Edge Gluer with Taylor Panel Flow Glue Spreader
29 Section 6½' Power Operated Billstrom Clamp Carrier
40 Section Taylor Power Operated Clamp Carrier

DOVETAILERS

10 Spindle Dodds Dovetailer
Dodds 12-Spindle Dovetailer
Wysong & Miles No. 290 Auto. Dovetailing Mach.

GLUE SPREADERS

Practically New Black Bros. 12" Motor Driven Edge Glue Spreader
New Union Conveyorized Edge Glue Spreader
Taylor Panel Flow Edge Glue Spreader
61" Francis Dble. Rubber Roll Resin Glue Sprder.
54" Union Dble. Rubber Roll Resin Glue Spreader

GRINDING ROOM EQUIPMENT

American No. 9 Automatic Knife Grinder
New Hanchett Automatic Band Saw Grinder for 7" Blades

JOINTERS

Yates-American No. 213 Direct Motor Driven Glue Jointer
Yates-American 16" No. 1 Direct Motor Driven Ball Bearing Hand Jointer
Porter 6" Direct Motor Driven Ball Bearing Hand Jointer

LATHES

Mattison 42" No. 57-D motor drive ball bearing
Mattison 30" No. 55-C motor drive ball bearing
Yates-American 30" T-5 Lathe

MORTISERS

Wysong & Miles No. 288 direct motor driven 6-spindle mortiser
Wysong & Miles No. 286 Hinge Seat Mortiser
Greenlee No. 227 direct motor driven single spindle mortiser

MOULDERS

Vonnegut 4" electric Moulder
Yates-American 4" Type C-88 Electric Moulder
Newman 6" No. 46 Electric Moulder
Newman 12" No. 27 Ball Bear. Belt Dr. Moulder
Hayes Sash & Door Sticker w/Plowing & Boring
Practically New 12" Vonnegut Electric Moulder
Woods 6" No. 132M Electric Moulder
Woods 12" 701M Electric Moulder
Hermance 8" No. 50 Ball Bearing Moulder

NAILING MACHINES

Morgan 12 Track 30" open back Clincher
Morgan 9 Track open Back Clincher
2 Doig 5 Track Closed Back Nailers
6 Doig 6 Track Closed Back Nailers

SINGLE PLANERS

New Crescent P-24 Direct Motor Dr. with Grinder
Whitney Ball Bearing Direct Motor Driven
Greenlee 36" No. 110
Yates-American 24" No. 1 Direct Motor Driven Ball Bearing Facer with Four Post Herzog Feed

DOUBLE PLANERS

Yates-American 30" No. 177 Ball Bearing Direct Motor Driven with electric Knife Grinder

SANDERS

Yates-American 43" No. 431 Direct Motor Driven Endless Bed Sander
Mattison No. 124 Automatic Stroke Sander
Pearson Waterfall Sander
Oakley Semi-Automatic Stroke Sander
Oakley Model H drawer Sander
Nash No. 50 and No. 25 Turning Sander

BAND SAWS

American No. 4 Band Resaw
J. A. Fay & Co. 36" Band Saw

CUT-OFF SAWS

Mereen-Johnson No. 300 Electric Chain Feed Double Cut-Off Saw and panel sizer
Yates-American No. 51 Direct Motor Driven Swing Saw
Beach Direct Motor Driven Ball Bearing Double Cut-Off Saw

RIP SAWS

Mattison No. 207 Direct Motor Driven Ball Bearing Glue Joint Rip Saw
American No. 15 Ball Bearing Chain Feed Rip Saw
Mereen Johnson No. 441 Ball Bear. Gang Rip Saw

MITRE SAWS

Bell No. 12 Direct Motor Driven Ball Bearing Double Miter Saw

SHAPERS

New Crescent Type S-2 Single Spindle Shaper
Whitney No. 139 Double Spindle Electric Shaper
Whitney No. 251 Double Spindle Electric Shaper
Whitney No. 234 Double Spindle Electric Shaper
Whitney No. 393 Automatic Single Spindle Shaper
Onsrud W-125 Double Spindle Automatic Shaper
Onsrud W124 Single Spindle Automatic Shaper

TENONERS

Fay & Egan No. 505 Direct Motor Driven Ball Bearing Single End

VENEER MACHINERY

Francis 76" Hydraulic Veneer Clipper
Dennis Veneer Taping Machine, Motor Driven
100" Coe Veneer Clipper
Merritt 8 and 10 plate redriers 84" by 54"
Francis Hydraulic Veneer Press 84"x36"
Merritt 13 Plate redrier 60 by 36

MISCELLANEOUS

Defiance Electric Router
Leitelt Lumber Lift
New Raimann Automatic Knot hole borer & plugger
4 Reynolds Screw Drivers
7½ KW Motor Driven Frequency Changer

SUTTON WOODWORKING MACHINE CO.

Sedgefield Inn **Phone 2-4186** **Greensboro, N. C.**

Check this list... DEPENDABLE HACKETT QUALITY Now!

NEW MACHINES—IMMEDIATE DELIVERY

Hand Jointers **Mitre Saws** **Self-Feed Rip Saw**
32-in. Circular Resaw **Electric S. E. Tenoner** **24-in. Single Planer**
Multiplex Saws and Delta Machines

BAND SAWS
Tannewitz-Greenlee-American-Crescent-Mask 36" BB M.D.
American 42" V-belt, motor drive.
Tannewitz 42" M.D.
West Side 36-in. V-belt, M.D.

BAND RIP AND RESAWS
Yates No. 312 44" chain-feed hand rip.
McDonough 62" Vertical Band Resaw.
Mershon 42" Twin Band Rip B.B.

BORING MACHINES
New Wysong and Miles spl-spdl. vert., d-m-d.
Greenlee 363-6 spindle, Univ. Vertical M.D.
Root "B-M" 16-spindle, cluster hd. motor dr.
Greenlee 356-P Single Ver. power feed.
Andrew single-spindle vertical, motor-drive

BLOWERS AND FANS
American No. 80E with 40 h.p. coupled motor.
Clarage type IE Model II Ball Bearing.

CLAMPS—GLUE ROOM EQUIPMENT
Greenlee No. 599 frame and furniture clamp.
Black Bros. 30-section, 10-ft., power-feed, ten Style E clamps per section, jaws 7-in. high, opening 24-in.
Taylor 6-ft. 12-sec. wheel type clamp carrier.
Francis 4'x8' Hand screw Veneer Press, 20 scr.

FILING ROOM MACHINERY
Black Diamond band saw filer
Rogers 38" cup wheel auto. knife grinder.
Hanchett No. 608 lap gr. b.b. max. cap. 8" wide
Covel-Hanchett No. 325 thin knife grinder.
Black Diamond No. 5 circular saw filer, m-d.

JOINTERS
American "Clement" 8-in. long tables.
Yates No. 213 Continuous feed direct m.d.
Meyers continuous feed V-belt M.D.
Porter, American, Oliver, Sidney, Fay & Egan, from 8" to 30" wide—several have feeding attachments—tell us what you need.
Yates No. 199, 20-in. rd.-hd., V-belt, m-d.

LATHES
Whitney 30-in. bankknife, gage, lathe.
Yates-American T5 Auto. Shaping, M.D.
Blount 6-in. 6-ft. speed lathe.
Oliver 12"x6' bed speed lathe, d-c mtr. in head

MORTISERS
Greenlee No. 226 vertical automatic H.S., m-d.
New Britain No. 2 Chain, with motor

MOULDERS
Yates No. C3 4" fast feed, belt drive.
Yates No. 108 10" belt drive coupled motor
Hermance 6" Ball Bearing with motor.
Newman 4"x4" all Electric.
Yates No. C-80 10"x4" all Electric.
Vonnegut 8-in. electric moulder and frequency changer

NAILING MACHINES
Morgan 18 track open back cleater. M.D.
Auto Nailer "Blue Model" M.D.

PLANERS
Yates Amer. J 18, 18" single B.B. D.M.D.
Yates No. 156 20" dr. hd. m.d.
F & E No. 156 24-in. single, dir. m.d.
Buss No. 4A 36" 6-roll single D.M.D.
Buss 6A 36" 6-roll single dir. m.d.
Berlin No. 177, 30x12" double belt dr.
American No. 80, 15-in. double, heavy duty.
Sidney 24" Rd. Head V-Belt Mtr. Dr.

ROUTERS
Carter Type TR, motor-drive 15,000 r.p.m.
Ekstrom-Carlson No. 126, ball brg., motor-drive

SHAPERS
Whitney No. 134 double-spindle dir. M.D.
Amer. No. 20 dbl-spdl. dir. M.D. Freq. Chgr.
Whitney No. 165, s.s., motor on arbor.
American dbl. spindle, belted m.d.
Onsrud W-248 single, ball bearing, m.d.
Whitney No. 282 Spl. D.M.D. 56"x40" table
Onsrud W 125 Automatic 84" Cap.
Porter No. 103 single, ball-bearing, motor-drive

SANDERS
Yates 401-49" roll feed, M.D.
Salem No. 370 43" 2 drum End, Bed.
Fay & Egan 30", 3-drum, roll-feed
Mattison No. 124, 6-ft. auto. stroke, m.d.
Buss 2-spindle vertical, oscillating belt drive.
Wysong & Miles No. 164 universal belt, m.d.
Yates No. 421, 40-in. 6 drum with motors.

MITRE SAWS
American No. 1 tilt table V-Belt M.D.
Union Tilting Arbor direct M.D.
Tannewitz tilt table motor on arbor.
Wallace 8" tilt-arbor, 1-h.p. 1-ph. motor.
American Dbl. revolving Arbor 5 HP Belted mtr.
Whitney No. 77 tilting arbor, direct m.d.

CUT-OFF SAWS
De Walt Radial Arm, 5 HP motor.
Jenkins No. 97, 103x48" double-end, chain-feed with copes, direct motor-drive
Greenlee No. 451 auto. cut-off and dado.
Buss double cabinet type, motor drive.
Porter 43-205 36-in. stroke, motor on arbor.
Oliver No. 94 straight line, direct mtr. dr.
Beach No. 142 Boxmakers, rolling table, D.M.D.

RIP SAWS
Hermance self-feed, V-belt motor drive

TENONERS
Greenlee No. 534, tilting spindles, dir. m-d.
American single-end with copes, rolling table.
Jenkins No. 95 double end, jump dado, d.m.d.

This is only a partial list — send or call your inquiries

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Rebuilding

AT ITS BEST!

At Left, a partial view of our warehouse looking toward the rear showing only about one-third of our stock.

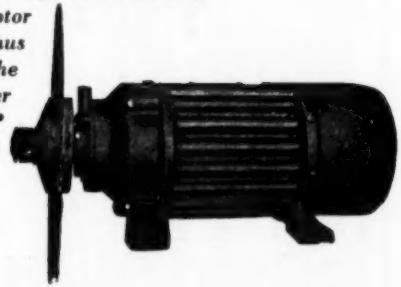
Owing to our very large stock changing almost daily, we are omitting our stock list. We have about 350 new and used machines. Tell us exactly what you want, and advise phase, cycle and voltage of your current

organization skilled in the rebuilding of all types of woodworking equipment. Every machine as it enters the plant is carefully checked and inspected by men whose knowledge and experience make them familiar with every detail . . . just as doctors make a thorough diagnosis before a remedy is prescribed. All parts are then removed . . . in fact the machine is completely stripped to the frame. Every box is rebabbitted . . . every spindle ground accurately to size . . . drums, cylinders, heads, and pulleys are balanced . . . knives are ground and balanced . . . every shaft or stud showing signs of wear is replaced.

Modern production and rebuilding methods employed at O & S provide further assurance that the equipment which we literally "remanufacture and assemble" will meet your exacting demands. Every machine rebuilt or sold is guaranteed.

are the judges. Whether your machines require rebuilding, or you need machinery to help you meet the competitive situations which are ahead, be sure to contact Osborne & Sexton in Columbus. You will find a friendly organization . . . capable and willing to work with you on your engineering and production problems. Write us today.

MOTORS Totally enclosed, dust proof, fan cooled, ball bearing saw arbor motors, 3600 r.p.m. From 1 h.p. to 15 h.p. Measures only 3¼" from center of motor shaft to flatted top. Thus facilitating the use of the smallest possible diameter saw blade. (2, 3 & 5 HP motors available for quick shipment.)



A large stock of Standard Frame 3 phase motors and controls from 1 HP to 125 HP.

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COLUMBUS 16, OHIO

BORING MACHINES

Andrews 6 spindles 8' Horiz. foot feed
Bell BBMD No. 24 Double end, boring & chucking and sawing 54" capacity Model 24-A
Jones Superior radial, 1" to 16"
Prybill—radial 1" to 12"
Single spindle horizontal

DOVETAILERS

Dodds 10, 15, 20 spindle

DOWEL MACHINES

Hawker No. 2 All Ball bearing & roller bearing VBD
Hawker No. 2 Ball Bearing Head VBD

JOINTERS

American 12" Wedge Bed BB
American 16" Wedge Bed BB
12" Colloday L. Powers, HB Smith, Crescent Sidney

LATHES

Mattison 55C BB Live Tailstock

MORTISERS

Northfield chisel mortiser, motor driven
Wallace chisel mortiser, motor driven

MOULDERS

Mattison No. 224 9" all electric, hopper fd.
Mattison No. 262 6" Drop Bed DMD
Eaglesfield 6" DMD BB All Electric
Yates C55 9" DMD All Electric
Yates American C55 9" DMD All Electric
SA Woods No. 107 12" 5 heads, belt driven
S.A. Woods 701 all electric DMD12" x 4"
SA Woods No. 131 9", belt driven
American C4A 8"x4" B.D.

PLANERS

American Saw Mill Pony 24" 5 HP CMD
Buss 36"x8 No. 4ML DMD Motor, sectional feed roll, sectional chip breaker Knife Grinder
Buss No. 4 BB 30" single Sec Feed & Chip CMD knife Grinder
Northfield 24" single, MD motor fd. No. 5
Whitney No. 32 36" BB CMD Knife Grinder

PLANER & MATCHER

Fay & Egan No. 156 20"x8" 6 hds., belt dr.

SANDERS

Peerless 9" 14" and 20" horizontal
Peerless 9" 14" Vertical
Wysong & Miles, Oakley, Mattison belt
HB Smith 42" 3 drum, endless bed
Solem No. 370 30" 2 drum
Yates 42" 3 drum Belt drive
Yates No. 431 30" 3 drum endless bed belt drive

SAWS - CUT OFF

Porter C43 5 HP DMD BB
Beach 5 HP DMD BB
DeWalt BB DMD 10 HP with water pump and 2 vises Metal Cutting Model ME-2
Heston & Anderson No. 5, No. 25 & No. 55
Multiplex 5 HP DMD BB
Unipoint 3 HP DMD BB
Wallace 2 HP DMD BB
DeWalt 1 to 5 HP DMD BB

SAWS - BANDSAWS

American BB No. 4 40" rip and resaw
36" American, Tannewitz, Crescent, Oliver
27" Crescent Band Saw
Northfield BB & DMD 20" to 36"
Oliver 30" DMD Fully Guarded

SAWS - RIP SAWS

Diehl BB No. 77 DMD 15 HP
Sinker Davis, self feed gang, BB belt dr.
Hermance Straight Line Plain Bear., BD

SAWS - VARIETY

American Saw Mill 5 HP DMD Tilt Arbor
American No. 10 tilt top belt drive
BM Root tilt top belt drive
Mereen Johnson, double tilt arbor, DMD BB with carriage
50 other makes to choose from

ROUTERS

Ekstrom Carlson New No. 232 & No. 337
Ekstrom Carlson Nos. 156 & 126

SHAPERS

McCartney BB 1 spindle
L. Powers single BB - MD
Union Single spindle BB MMBD
Onsrud No. 200 Single 15,000 RPM
Whitney 2 sp. automatic BB MD No. 102
Whitney single 153 DMD and Belt Drive
Yates N2 BB MD

TENONERS

Crescent single end, 5 head individual motor drive, BB
American No. 1 Single end belt driven
Newman single end BD

MISCELLANEOUS

Electric Carpenter 5 machine combination all ball bearing motor driven.
NEW—Taylor caterpillar clamp carrier 60 sections, 6½' centers 32" wide clamps, air rotation.
Jenkins Veneer Jointer
Evans Ring Joint Machine
Union case clamp.
Covel Hanchett Band Re-saw grinder MD
Morgan Double Lock Corner No. 8
Fay & Egan No. 470 Jigsaw
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Endless canvas belts, large variety of lengths and widths, also sand belts for Skilsaw, Porter Cable and Vonnegut brush sanders. Accessories and supplies, tremendous lot both new and used. Also band and resaw blades.

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YOU will SAVE by buying "Fader Rebuilt Machinery"

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Donough 54" Ballbearing, D.M.D. (new)

ND SAWS
perior 36" Single, B.B., M.D.
perior 42", ballbearing, Motor Driven
erican No. B-38, 38", Ballbearing, M.D.

RERS
drews 60" 16-spindle, vert. M.D. Power Feed
drews 60" 6-Spindle, Horiz., DMD Power Feed
lley City, 2-spdl., adj. radial, Motor Driven
erican 2-spdl., adj., radial, Motor Driven
enlee No. 360 Multi-Spindle, Vert. M.D., Power feed
perior 2 Spindle Adjustable Radial, BB, D.M.D.
perior 3-Spindle., Adjust. Horiz. Motor Driven
vsong & Miles No. 283B, Sgl. Spdl. Vert., B.B. D.M.D (Like New)

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ll Chair Assembly, Air Operated (like new)
ll 4-way Hi-Jaw, Air Operated
ll 4-way Frame & Chair Back, Air Operated.
ll No. 95 Revolving Case Clamp, Air Operated.

LAMP CARRIERS
yler 12-Section, 6½' wide, 4-32" clamps per sec.
yler 20-section, 7½' wide, 4-32" clamps per sec.
yler 40-section, 6½' wide, 4-38" clamps per sec.

DVETAILERS
dds 12 Spindle, Spiral Gears, Motor Driven

DWEL MACHINERY
ll No. 7 Automatic Gluer and Dowel Driver (for sash and door.)
wker No. 2, capacity ¼" to 2", B.B., M.D.

ACERS—JOINTER FEEDERS
nerican 24" Ballbearing, Round Head, Motor Driven, with Gillstrom Feeder

INTERS
ehl No. 60, Continuous Chain Feed, B.B., DMD
& A 6" Round Head, B.B. Motor Driven
y & Egan No. 217, Continuous Chain Feed
nerican 12", Round Head, Motor Driven

G SAWS
iver No. 173 Self-contained, D.M.D.

ORTISERS
enlee No. 228 Vert., Hollow Chisel, M.D.

OULDERS
nerican No. 1, 4", 4-Side, Motor Driven
nerican No. 1, 6", 4-Side, Motor Driven
glesfield 4", 4-side all electric, B.B.
ttison No. 262, 6", 4-Side All Electric B.B.

PLANERS
Buss No. 4, 30" Single Cabinet, Motor Driven
Superior 28" Single, Motor Driven
American No. 112, 30" single, Motor Driven
Yates No. 156, 6", Single Cabinet, Motor Driven
Superior 24" Single, Motor Driven
Whitney No. 32, 30" Single Cabinet, D.M.D., B.B.
American No. 666, 30" Double Cabinet, D.M.D., B.B.

ROUTERS
Porter No. 502, 2-spdl., B.B., D.M.D.

SANDERS
Smith 43", 3-drum Endless Bed D.M.D.
American No 2, 24" Disc and Oscillating Spdl.
American No. 5 Drum Sander, D.M.D.
Mattison No. 138 Hand Block Belt, Motor Driven
Mattison No. 172, Oscillating Edge Belt, M.D.
Pryibil 20" Horizontal Belt, Motor Driven
Yates No. 430, Hand Block Belt, Motor Driven
Production 16" Horizontal Belt, D.M.D.
Porter-Cable 10" Vertical Belt, D.M.D., B.B.
Delta 6" Adjustable Belt, B.B., M.D.
Nash No. 10, 48", 6 Spindle, Auto. Turning Sander, M.D.

SAWS—CUT-OFF
Bell No. 12-B Dbl. Mitre and Cut-Off, BB. DMD
Buss Double End, Motor Driven
Racine Floor Type—Motor Driven
Fay & Egan Double End, Motor Driven
Oliver No. 136 Ceiling Type Swing, BB, DMD, with Tables.

SAWS—RIP
American No. 15 Chain Feed, Motor Driven
Defiance No. 21-D Chain Feed—Motor Driven
Mattison No. 207 Chain Feed, DMD
Yates-American No. 0, Self-Feed, D.M.D., B.B.
Englesfield Chain Feed, D.M.D., B.B.

SAWS—VARIETY
American No. 1, Tilting Table, Motor Driven
Dodds Tilting Table, Motor Driven
Pettingell, Tilt Arbor, Roller Table, M.D.

SHAPERS
Whitney No. 393 Automatic, Single Spindle, BB, DMD, with Frequency Changer
Onsrud W125 72" Automatic, multiple stations, B.B., Direct Motor Driven, with freq. changer
Buss, Sgl. Spdl., Hi-Speed D.M.D., B.B.
Oliver Sgl. Spdl., Hi-Speed D.M.D. B.B.

SPREADERS—GLUE
Black No. 5, 12" Single Roll, M.D.
Francis Model G, 52" Double Roll, for cold glues, M.D.
Advance 24", Double Roll, equipped for steam
Bell No. 13, Auto. Dovetailer Gluer, electric heat

TENONERS
American, Single End, Tenon Heads, M.D.
McKnight No. 71C Chair Back Tenoner, M.D.
Tewsley Single End, Tenon heads, lower cope, cut off saw, Motor Driven

VENEER MACHINERY
Black Bros. No. 116 42"x84" Electric Veneer Press
Dennis Continuous Feed Veneer Jointer, M.D.
Dennis Veneer Taping Machine, Motor Driven
Jenkins-Falls Veneer Jointer, B.B., Motor Driven
Merritt 84"x54", 3 Plate Veneer Redrier, D.M.D.

MISCELLANEOUS
Mattison No. 231 Univ. Cutterhead Gr., D.M.D.
Auto-nailer, Floor Type, Direct Mtr. Driven, B.B.
Garden City 30" Shaving Exhaust Fan, D.M.D., B.B.
Sturtevant 48" Exhaust Fan, Motor Driven
Yates-American T-5, 30" Auto. Turning Lathe, D.M.D., B.B.

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Jenkins No. 96—60"x36" Ball Bearing Belt Drive Double End Tenoner
Hayes 96"x40" Plain Bearing Belt Drive Double End Tenoner with 15 H.P. motor
Hayes 102"x60" Double End Tenoner
Crescent Ball Bearing Electric Single End Tenoner
Mattison No. 55-C—30" Ball Bearing Auto- matic Shaping Lathe
Mattison No. 57-D - 42" Ball Bearing Automatic Shaping Lathe
Jenkins No. 65 Ball Bearing Sash and Door Sticker
Jones-Superior No. 35 Two Spindle Horizon- tal Borer
Wysong & Miles No. 283-B Single Spindle Borer
Yates S-7—6' Hand Lever Stroke Sander
Indiana No. 7 Hand Block Belt Sander
Jones-Superior No. 145—30" Disc Sander
Diehl No. 75 B.B. Straight Line Chain Feed Rip Saw
Mattison No. 207-M Ball Bearing Motor Dri- ven Straight Line Chain Feed Rip Saw
Buss Double Cut-Off Saw
Wilkin-Challoner 72"x40" Electric B. B. Double Cut-Off Saw
Tannewitz 42" Ball Bearing Band Saw
Greenlee No. 495 BB Variety Saw
Whitney No. 77 Ball Bearing Tilting Arbor Variety Saw
Greenlee No. 110—36" BB, DMD Single Planer
Whitney No. 24—30" Motor Driven B. B. Double Planer
Porter 300-CM—24" Facer with Herzog Feeder
Fay & Egan 24" Jointer, with 7½ H.P. motor and Jointer Attachment
Mattison No. 244 BB Cut-Off Saw
Beach Wood Frame Variety Saw
Billstrom 6' 39 Section Clamp Carrier
Billstrom 7' 29 Section Clamp Carrier
Taylor 19 Section Revolving Clamp Carrier

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ROOM 1806 **666 N. LAKE SHORE DRIVE** **CHICAGO 11, ILLINOIS**

REBUILT AND USED MACHINES

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Oliver No. 116, 36" D.M.D.
Colladay & Crescent 36"
Jones-Superior No. 155, 42" M.D.
BORERS
Root "GM" Vertical Single Spindle
Towsley No. 3, 2-Spindle Horizontal Radial
Greenlee No. 368, 2-Spindle Horizontal M.D.
Keystone 3-Spindle Horizontal 1" centers
CARVER
Minnesota 20-Spindle Multiple Carver
CLAMPS
American 4'x8' Door Clamp
Lancaster No. 500 Air End Clamp
CLAMP CARRIERS
Taylor 7½ Ft. 40-Sec. Chain Type
DOVETAILERS
Dodds 10-Sp. spiral gear drive.
GLUING MACHINES
Black 30-Gal. Gold Resin Glue Mixer
JOINTERS
6", 8", 12", 16", 20" sizes
30" with Billstrom Feeding Attachment
Yates Continuous Feed Glue Jointer
LATHES
Imperial Auto. Turning, D.M.D.
Reed 16" Turning Lathe, 10" Swing
MORTISERS
Wysong & Miles No. 271 Hollow Chisel
Fay & Egan No. 462 P.F. Hollow Chisel
Wysong & Miles No. 181, 6-Spindle Horiz.
MOULDERS
Hermance 6" 4-Side
4" & 6" Single Head Stickers
PLANERS
24", 30" and 36" Single
Whitney 30" Double, 8 feed rolls
SANDERS
NASH No. 65 Automatic Turning
Curtis No. 6 Belt Sander, M.D.
Curtis No. 11 Semi-Auto. Belt Sander
Porter-Cable B-6 Irregular Belt
Wysong & Miles No. 173 Univ. Belt
American No. 2, 43" Roll Feed 3-Drum
SAWS—CUT-OFF
Porter Floor Type, with Table
Y-A C-44 Floor Type, with table
Root No. 248 Double, 32"x82"
Bell No. 12 Double Miter
SAWS—CHAIN FEED
Mattison No. 205, Motor Driven
SAWS—SELF-FEED
Hermance No. 31 Adjustable Roll
Greenlee No. 426
Root and American
SAW TABLES
Tannewitz SJ Tilting Arbor
American Double Revolving Arbor
American No. 7½ Comb. & Dado
Beach D.M.D., Tilting Table
SHAPERS
American No. 1 Single Reversible
Shimer Single Spindle Reversible
Whitney No. 8 Double Spindle
TENONERS
Colladay & American Single End
Fay & Egan Single End
Wilkin-Challoner No. 70 Motorized Double End
VENEER JOINTER
Jenkins No. 23 D.M.D. Ball Bearing

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TOP VALUES

Earle Hart's USED AND REBUILT WOODWORKING MACHINERY

ROCK BOTTOM PRICES

• Indicates Ball-bearing and Motor Driven

BORERS—Horizontal & Vertical
Towsley two-spindle horiz. radial borer.
• Oliver No. 71—3-spindle horizontal borer.
Greenlee No. 365—30" Mult. Horiz. Borer.
Andrew 48" & 72" Mult. Horiz. Borer
• Wysong & Miles No. 263-B Vert. Sgl. Spl. Borer.
• Greenlee No. 386 6-ft. and 8-ft. vert. multiple borers
• Greenlee No. 369—48" Vert. Mult. Borer.
Andrews 60" multiple vertical borer.

CHAIR MACHINERY
• McKnight double end sawing and boring machine.
• McKnight 4CM horiz. and vert. borer with double end sawing.
Pringle & Brodie horizontal borer.
McKnight No. 1E saddle seat machine.
Bell No. 8 dowel gluer and driver
Dauber-Bell dowel cutter and pointer.

CLAMPING MACHINERY
Taylor-Billstrom-Black 12-18-30-40 section clamp carriers.
Handy No. 447 Air Operated, 2-Way End Clamp.
Handy and Union revolving case clamps.

GLUE MIXERS & SPREADERS
Francis M-7 (75 gallons) Veg. Glue Mixer.
Union 36" and 60" Dbl. Roll Resin Glue Spreaders.
Francis 12-in. edge glue spreader.

JO'NTERS
• Fay & Egan No. 506—12" hand jointer.
• Yates-American No. 213 Glue Jointer.
• Jenkins No. 343-A glue jointer
• Diehl No. 60 glue jointer.

LATHES
• Mattison No. 55-C Auto. Turning Lathe, B.B.
Mattison No. 210 copying lathe.

MORTISERS
• Greenlee No. 227 automatic hollow chisel mortiser.
Greenlee No. 228 Auto. Hollow Chisel Mortiser.
New Britain No's. 2 and 7 chain saw mortiser.
• Whitney No. 67 horiz. osc. bit mortiser.

MOULDERS
• Mattison No. 276—6-in. electric moulder.
• Vonnegut 6-in. electric moulder.
• Yates No. 108—10-in. heavy-duty moulder.
Yates C3A-4" BB Belt Drive Moulder.
• Hermance No. 50—8" drop bed moulder.

PLANERS—Facing
• Whitney No. 32—30" single planer.
• Porter 24" facing planer—Herzog feed.
• Yates-American No. 3—36" facing planer. Herzog feed

PLANERS
• NEW Whitney No. 32A—30-in. single planer.
• Whitney No. 29—36-in. single planer.
• Greenlee No. 110—30" 6-roll single planer.
• Whitney No. 24—30" and 96" Double Planer.
• Whitney No. 33—40" Heavy Duty Dbl. Planer.
• Yates-American No. 177—30" roughing planer.

ROUTERS
• Onsrud W-240 heavy duty electric router.
• Porter No. 600 and 610 heavy duty elec. router.

DRUM SANDERS
Yates No. 431—43" 3-Dr. End. Bed Motorized.
• Solem S-3-M—73" 3-Drum Endless Bed Sander.
American No. 9—61" 3-drum roll feed sander, mtrzd.

SANDERS—Belt & Miscellaneous
• Wysong & Miles No. 603 Automatic hydraulic stroke
Curtis No. 8 semi-automatic stroke sander
Mattison No. 124 Auto. Stroke Sander.
• Wysong & Miles No. 277 hand block belt sander.
Nash No. 10 & No. 25 Auto. Spindle Sanders.
American No. 11 horiz. surface sander.

SAWS—Band Scroll & Resaws
• Superior 36-in. band saw—Carter wheels.
• Fay & Egan No. 50—36" band saw.
• McDonough 44" vertical band resaw.

SAWS—Cut-Off
• Porter 23-20J Hydracut saw.
• Porter 43-20S straight line cut-off saw.
• Yates-American G-44 straight line cut-off saw.
• Jenkins No. 105-A Dbl. Cut-Off and Mitre Saws.
Mereen-Johnson No. 435 6-ft. multiple cut-off saw, groover, and equalizer.

SAWS—Rip
• Diehl No. 75 straight line ripsaw.
• Mattison 205-207 and late model 202 straight line ripsaws.
• Yates-American G-77 straight line ripsaw.
Greenlee No. 426 self-feed ripsaw.

SASH & DOOR MACHINES
Bell No. 5-B stile and rail borer.
• Bell No. 11 power door clamp.
Bell No. 7 dowel driver and gluer.
Milbury corket cutter.

VARIETY SAWS
• Tannewitz Type J tilting arbor variety saw.
• Whitney No. 61 tilting arbor variety saw.
• Fay & Egan No. 508 tilt-table variety saw.
• Tannewitz tilt-table variety saw, b.b.
• Baker Double Arbor Variety Saw, BB.
• Yates-American No. 8 saw and dado machine.

SHAPERS
• NEW Crescent No. S-2 Single Spindle Shaper.
• Porter No. 103 Single Spindle Shaper
• Porter No. 201 Double Spindle Shaper
• Greenlee No. 180 Double Spindle Shaper.
• Whitney No. 351 double spindle, 12½ HP motors
• Whitney No. 393 Automatic Single Spindle Shaper.
• Onsrud No. 124 automatic single spindle shaper.
• Whitney No. 202 automatic double spindle shaper.

TENONERS
• Greenlee No. 532 single end tenoner.
Greenlee No. 530 single end tenoner b.b.
• Wilkin-Challoner No. 70 - 96" double end tenoner.
• Jenkins No. 95—96-in. double end tenoner.
Jenkins No. 96 60-in. double end tenoner, b-b.

VENEER EQUIPMENT
Dennis No. 2 veneer taper.
Francis 30"x72" Hyd. Veneer Presses.
Merritt 84x54—8—10—12 Plate Bedriers.
Francis 30x80-in. hand screw veneer press.
Large quantity "I" beams and turnbuckles.

MISCELLANEOUS MACHINES
• Hanchett GK 36-in. auto. knife grinder.
Food Machinery Co. Model AU-2 buzzsaw.
• Woods No. 227 side head grinder.
NEW Hanchett No. 133 Auto. Band Resaw Sharpener

This is only a partial list. If the machine you want is not shown, write us.

STANDARD OF EXCHANGE
THE "HART" LINE

Earle Hart WOODWORKING MACHINE COMPANY

565 WEST WASHINGTON BOULEVARD CHICAGO 6, ILL. RAndolph 6-4970

SCOTCH PRICES

(Denotes Better Buys)

Air Compresser, Curtis, 200 lb. cap., 1½ h.p. mtr., 2 small booths, spray guns, 10 gal pressure tanks
Band Scroll & Resaw, 42". F. & E. No. 146, mtr.
Belt Sander, Wysong & Miles No. 275, b.b., 5 h.p., 1200 rpm mtr., used three months
Borer, vert., dbl. col., Andrew No. 75, b.b., automatic, 60", 10 h.p., 850 rpm mtr.
Borer, horiz., 2-spindle, Oliver, mtr.
Borer, horiz., Andrew 60", 4-spindles
Boxboard Printer, C. & D., 24", 1-color, sh.-fd.
Boxboard Matcher, Morgan, 12 roll
Clamp, Handy No. 195, mitre
Clamp Carrier, rev., Palmer, 12'x30", 60-sec., 96 clamps
Cut-off Saw, double, Buss 72"
Cyclone, 8' wide by 9½' high, with mtr. & blower
Dowel Machine, ballb., Hawker No. 2, two mtrs.
Factory Trucks, various sizes.
Glue spreader, 14", Francis, 1 h.p.
Jointer, incline bed, Newman No. 60, 16", 5 h.p. motor on cylinder
Lathe, automatic, Imperial 31", 10 h.p., ballb.
Lathe, autom., Mattison No. 57-B, 42", ballb.
Lock corner cutter, double end, B. & M., autom.
Mortiser, chain-saw, New Britain No. 3
Nailers, Morgan & Doig, 6 to 24-track, closed and open back with and without clinchers
Panel Raiser, F. & E., hand-feed
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Sander, autom. stroke, Mattison No. 124, 8-foot
Saw, mitre, dbl.-end, Dauber-Bell, 72"
Shaper, 2-spindle, Whitney No. 134, freq. changer
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Abrasive Belt Splicer, 120
Abrasive Renewing Compound, 118
Abrasives, 12, 117, 140D

Bent Wood, 201
Bits, machinery, 42, 100, 108, 148, 164, 170
Boring Machines, 68

Canvas, graphite coated, 200
Clamping Machines, 55, 91, Inside Back Cover
Clamps, 91, 122, Inside Back Cover
Clamps, bar, 173, 204
Clamps, piling, 122, 204
Cutter Heads, 115, 182, 198
Cutters, 78

Dimension Stock, 63, 104, 109
Doors, 140B-C, 204
Dowels, 205
Drawer Supports, 203
Drill Presses, 181
Drilling Attachments, 186
Dry Kilns, 6, 64, 187
Dry Kiln Control Devices, 187
Dust Control Systems, 26, 92, 179, 181, 185

Electronic Bonding Equipment, 8, 13, 14-15, 23, 133
Enamels, 110

Factory Trucks, 173, 194, 196, 203, 205
Finishes, 110
Furniture Glides, 84

Glue Spreaders, 176, 191
Glues, animal, 169
Glues, casein, 18-19, 20, 35, 178
Glues, resinous, 18-19, 20, 29, 82-83, 149
Glues, vegetable, 20
Goggles, 156
Grinders, 171
Guages, lumber, 106
Guide Lights, 101

Hardware, 155
Hogs, 80, 127
Humidifiers, 3, 79

Jointers, 181, 202, 207, 231

Kiln Drying Service, 107
Knives, 78, 89, 99, 115, 146, 148, 167, 180, 182, 236

Laboratory Services, 194, 205
Lacquers, 110
Lifts, 105
Lubrication Systems, 192
Lumber, 48, 106, 109, 134, 154

Matchers, 47
Moisture Meters, 62, 81, 98, 201
Molders, 47, 65, 77, 199
Mortise Chains, 166

Mortisers, 231

Nailing Machines, 40, 57, 203

Paint, 110
Planers, 30, 47, 67, 124-125, 207
Planes, portable electric, 11
Plastic Sheets, 58-59
Plywood, 128, 140-A,B,C, 154
Plywood, curved, 145
Presses, plywood, 130, 152

Resaws, band, 197
Resins, 102
Routers, 33

Saddle Seat Machine, 75
Safety Equipment, 156
Sanders, automatic stroke, Back Cover
Sanders, belt, 38-39, 44-45
Sanders, contour, 44-45, 66
Sanders, endless bed, 2, 4
Sanders, portable electric, 37, 174, 184, 188
Sash Pinners, Front Cover
Saw Blades, 10, 25
Saw Blades, band, 10, 25, 201, 205
Saw Blades, carbide, 16, 34, 123, 124-125
Saw Guages, 199
Saw Guides, 147
Sawmills, 198
Saw Setting Machines, 36, 160
Saw Sharpeners, 173, 190, 203
Saws, band, 25
Saws, cut-off, 159, 223
Saws, rip, 28, 94, 171, 233
Saws, tilting arbor, 32, 121, 161
Saws, variety, 126, 195
Screw Drivers, 162
Screw Driving Machines, 137
Screws, 7, 31, 93, 172, 177
Shaper Collars, 173
Slides, table, 163
Stains, 110
Stapling Machines, Front Cover
Steel, strapping, 27
Surfacers, 1, 9, 231, 235

Tack Rags, 120
Tenoners, 61, 198

Varnish, 110
Veneer Clippers, 135
Veneer Cutter, 143
Veneer Dryers, 135
Veneer Lathes, 135
Veneer Tables, 154
Veneers, 128, 134, 136, 138, 142, 144, 154

Wood Prefabricators, 171
Wood Fillers, 119
Wood Treatment Chemicals, 113
Woodworking Tools, all kinds, 124-125, 168

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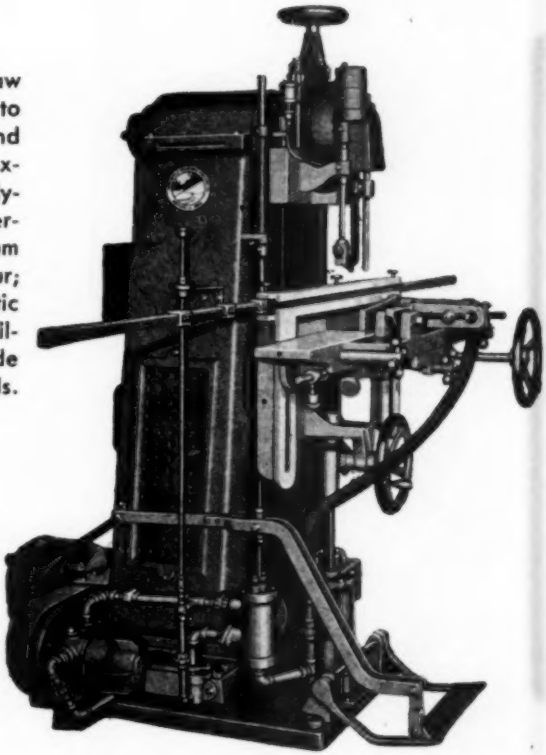

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Index to Advertisers

A

A.A.A. Saw & Tool Service & Supply Co. 213-215
Abrasive Products, Inc. 140-D
Acme Steel Company 27
Adhesive Products Corp. 194
Adjustable Clamp Co. 204
Aetna Plywood & Veneer Co. 128
Aget-Detroit Company 181
American Machinery & Motor Co. 224
American Machinery Exchange 209
American Pulverizer Company 80
American Screw Company 31
American Woodworking Company 210
Amos-Thompson Corp. 134
Armour and Company 117-169
Armstrong Machine Works 79
Associated Plywood Mills, Inc. 140-A
Atkins and Company, E. C. 10
Atlantic Lumber Company 48
Atlas Press Company 161

B

Bacon-McMillan Manufacturing Company 138
Bahnson Company 2
Bass, Rudolf 168
Batts, John Thomas 211
Beach Manufacturing Company 4
Behr-Manning 12
Bell Machine Company 55
Bertheisen Engineering Works, V. 152
Beverly Manufacturing Company 119
Bickler, Edgar G. 228
Big Four Carbide Tool Company 16
Bijur Lubricating Corp. 192
Birds Eye Veneer Company 136
Black Bros. Co., Inc. ....Inside Back Cover
Black and Decker Manufacturing Company 137
Blake & Johnson Company 7-31
Boice-Crane Co. 211
Boshco, Inc. 210
Branyan and Peterson, Inc. 211
Burroughs-Ross-Colville Company 205
Burton Saw Company 201
Buss Machine Works 9

C

Carter Products Company 101
Central Screw Co. 31
Childs Machinery Company, W. P. 199
Clements Lumber Company, Al 109
Click, Mrs. A. Graham (Veneer Tables) 154
Clifton Machinery Company 209
Coe Manufacturing Company 135
Columbia Machinery and Engineering Company 130
Commander Manufacturing Company 186
Continental Screw Co. 31
Cyclone Blow Pipe Co. 179

D

Day Company 92
Delmhorst Instrument Company 62
Delta Power Tool Div.
(Rockwell Mfg. Co.) 121
Dependable Machine Company 77
Detro Manufacturing & Sales Co. 120
Detroit Edge Tool Company 167
Detroit Surfacing Machine Company 184
Devereux Products Company 216
DeWalt, Inc. 126
Diehl Machine Works, Inc., G. M. 182-233
DoAll Company 25
Doig, Inc., Wm. S. 40
Dremel Manufacturing Company 37
Duro Metal Products Company 33

E

Econaway Manufacturing Company 120
Ekstrom, Carlson & Company 65
Electric Equipment Company 211
Electronic Heating Corp. 8
Enterprise Company 198
Ervin Machinery Company 213-219
Extension Drawer Support Company 203

F

Fader & Co., A. L. 225
Farley and Loetscher Manufacturing Company 213
Field Co., Wm. H. 166
Fitzpatrick Lumber Company, J. J. 104
Foley Manufacturing Company 190
Food Machinery and Chemical Corporation 57
Forest City Bit and Tool Company 164
Forster Lumber Company 213
Francis Company, Charles E. 143

G

Gaynes Engineering Company 210-229
Girdler Corporation 13
Globe Vise and Truck Company 203
Gluetools, Inc. 191
Goodspeed Machine Company 67
Greenlee Bros. and Company 61
Greenlee Tool Co. 42
Gustafson & Scott Manufacturing Co. 173-228

H

H. H. Products and Finishing Corp. 204
Hackett Co., J. Lee 211-217-221
Hall and Brown Machinery Company 215
Hamilton Caster & Manufacturing Co. 205
Hanchett Manufacturing Company 36
Handy Manufacturing Company 91
Hanley, Ed. 216
Harrington, Inc., S. W. 209
Harris Machinery Company 213
Hart Woodworking Machine Co., Earle 133-208-212-227
Hartford Clamp Company 173
Haskew & Company, R. K. 211
Hastings Sales Engineering Company 203
Hawker Manufacturing Company 99
Heston & Anderson Manufacturing Co. 202
Hill Brothers Veneer Company 144

I

Imrie Dry Kiln Company 187
Inland Industries 209
Irvington Machine Works 106

J

Jakes Foundry Company 173
Jamestown Veneer and Plywood Corp. 140-B-C
Jos, Curt G. (Jenkins Machinery Co.) 215
Jones & Orth Cutter Head Company 115

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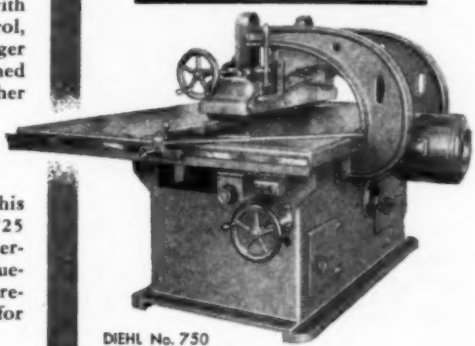

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K

Karbide King Tool Corp. 123
Kaydel Moisture Gage Company 201
Kenner, L. R. 208
Kirk and Blum Manufacturing Company 26
Koppers Company, Inc. 29

L

Land, Inc., L. J. 212
Larson Plywood Company 145
Leitelt Iron Works 105
Looney-Miller Lumber Co. 216
Lumber Manufacturers, Inc. 107
Lundberg, David V. 213

M

McDonald Machinery Company 229
McDonough Mfg. Company 197
McKnight Machinery Company 75
Maryland Engineering Company 212
Mattison Machine Works ....Back Cover
Mayes Company, Inc. 142
Media Machine Works 195
Meier and Pohlman Furniture Company 216
Mereen-Johnson Machine Company 94
Michigan Frame Company 213
Millbury Machine Co. 196
Moak Machine and Tool Company 207
Moisture Register Company 98
Moline Paint Manufacturing Company 118
Monical Machinery Company 218
Monite Waterproof Glue Company 178
Monsanto Chemical Company 82-83
Moore Dry Kiln Company 64
Morgan Manufacturing Company 63
Muskegon Machine Company 171

N

National Adhesives 18-19
National Air Sander, Inc. 188
National Casein 35
National Plastic Products Company 58-59
National Screw & Mfg. Company 31
Nelson Company 149
Nelsonite Chemical Products Company 113
Newman Machine Company 47
New Process Screw Corp. 31
North American Products Co. 100
North Brothers Manufacturing Company 162
Northern Hardwood Veneers, Inc. 154
Northfield Foundry & Machine Co. 231
Northwoods Timber Company 212
Nutting Truck and Caster Company 196

O

O'Brien, E. E. 216
O'Leary & Flynn 226
Oliver Machinery Company 1
Osborne & Sexton Machinery Co. 212-215-222-223
Ottawa Basket Company 211

P

Paddock Tool Company 147
Pearson Sanding Machine Company 44-45
Perkins Glue Company 20
Peterzell and Company, Victor 209
Pheoll Manufacturing Company 93
Pistorio, Samuel M. 208
Plycor Company 133
Porter-Cable Machine Company 174
Porter Machinery Company, C. O. 159
Power and Company, L. 30
Price and Rutzebeck 108
Process Engineering Corporation 200
Providence Saw and Knife Company 173

R

Radio Receptor Company, (Thermatron Division) 2
Reisen Hardwood Lumber Co. 10
Reliance Varnish Company 11
Rockford Screw Products Company 17
Root Company, B. M. 68-22
Russell-Jennings 17

S

Samuel Machinery Company 21
Sand-Rite Manufacturing Company 6
Saw & Knife Specialty Company, Inc. 20
Shimer & Sons, Samuel J. 19
Shopmaster, Inc. 18
Simonds Saw and Steel Company 23
Sinker-Davis Company 2
Smith Machine Company, H. B. 5
Sorenson and Peters Inc. 20
Southern Screw Company 17
Southington Hardware Mfg. Co. 3
Spotnails, Inc. ....Inside Front Cover
Stalter Edge Tool Company 18
Standard Dry Kiln Company 6-8
Standard Furniture Company 21
Stanley Works 11-15
Stronghold Screw Products, Inc. 3
Surplus and Salvage Company, Inc. 21
Sutton Woodworking Machine Company 22
Synvar Corporation 10

T

Tannewitz Works 32-19
Taylor Manufacturing Co., James L. 12
Taylor-Stiles and Company 14
Thermatron Div. (Radio Receptor Co.) 2
Timber Engineering Company 20
Townsend Company 3
Towsley Trucks, Inc. 19

U

Union Tool Corp. 17
United-Carr Fastener Corporation 8
Used and Rebuilt Machinery 20

V

Velepec Co., Fred M. 14
Victory Carbide Saw and Tool Company 3
Virginia Machine Tool Company 7

W

Walter & Company Inc., B. 16
Wardwell Manufacturing Company 16
Wayne Lumber Company 20
Westinghouse Electric Corp. 14-1
Westman, P. D. 21
Whitney and Son, Inc., Baxter D. 23
Wilco Machine Works 21
Williams Patent Crusher and Pulverizer Co. 12
Willson Products, Inc. 15
Wisconsin Knife Works 8
Wood-Mosaic Company 21
Woodward Machinery Company 20
Woodworkers Tool Works 124-125-21

Y

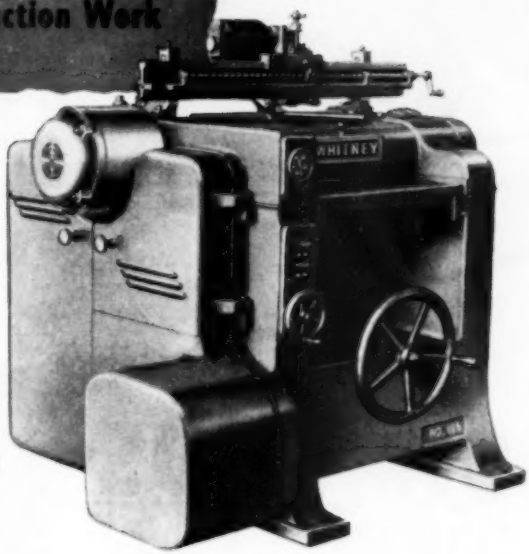
Yates-American Machine Company 38-3
Young and Bertke Company 18

Z

Zeiller & Nagel, Inc. 20

Whitney 105

A Space-saving, Profitable SINGLE SURFACER For Quality Production Work



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SIMONDS

THIN Planer KNIVES

Do you want sparkling, satin-smooth finishes like this? Surest way to get them . . . *and keep on getting them* . . . is to see to it that all your planers are equipped with Simonds Thin "Red Streak" Knives. Simonds makes a special steel, heat-treats it in electrically controlled furnaces, then grinds the knives to absolutely uniform thickness so that the clamping gibs will be properly positioned and the planer head will be perfectly balanced in operation. Add to this their exceptional toughness, and resistance to heat generated by fast feeds and speeds, and you can see why . . . wherever smooth finish is a must . . . Simonds Thin Planer Knives have become a standard specification.

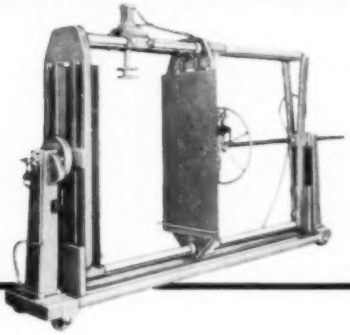
Buy Through Your Simonds Distributor

There's Longer Life in a Simonds Knife

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Ore. Canadian Factory in Montreal, Que.

Clamps

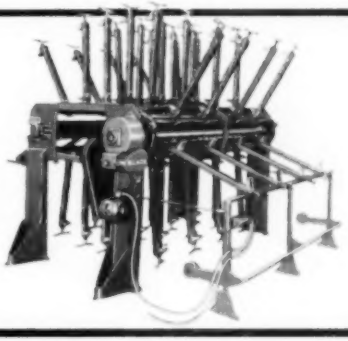


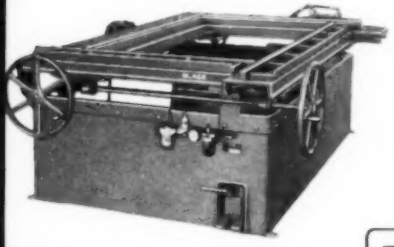
CASE CLAMPS

Massive tubular supports are mounted as fixed preloaded beams that will remain rigid and true, insuring accurate work under any load. No cast iron is used in any strain receiving member. Convenient controls and a powerful brake make operation easy and accurate. Write for Bulletin 11-J.

CLAMP CARRIERS

Black Clamp Carrieres are made in a practically unlimited range of sizes with respect to the number and width of sections and number, length and style of clamps. Carriers are made entirely of arc-welded and fabricated steel, providing an unbreakable frame and permitting flexibility of design. Write for Bulletin 11-K.





SASH AND FRAME CLAMPS

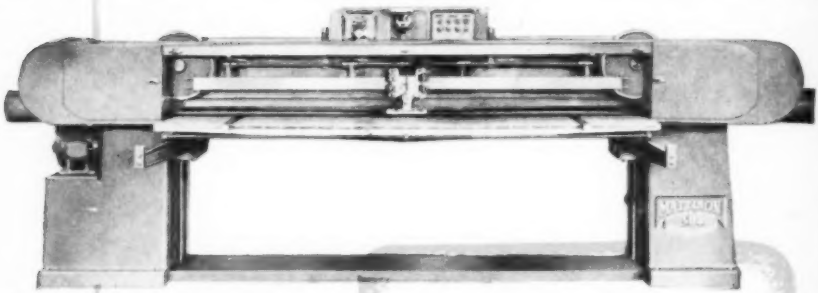
Black's two-way pneumatic clamps are mounted on a rigid, solid steel base with all controls conveniently grouped at the front. Valves and air supply lines are protected from damage by this base. Black clamps have been tested under production conditions, and proven to be fast, efficient and reliable. Write for Bulletin 11-M.

"If its gluing equipment—we have it"

THE BLACK BROTHERS CO., INC. **810 9th ST., MENDOTA, ILLINOIS**

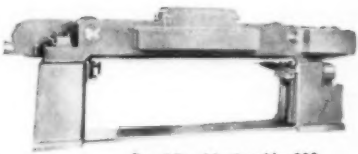
MATTISON'S NEW

No. 303 Automatic STROKE SANDER



Front View Mattison No. 303
Automatic Stroke Sander — Single Belt

Mattison No. 303
Automatic Stroke Sander — Double Belt



Rear View Mattison No. 303
Automatic Stroke Sander Single Belt

• The Mattison No. 303 Automatic Stroke Sander is the last word in modern engineering. From the standpoint of design — construction — smoothness of operation and appearance, it is in a class by itself. Results that can be expected are faster output, better quality of work, and trouble free operation. These important features are all to your advantage. Hydraulic system for operation of shoe is simple yet positive in action, providing smooth operation of sanding shoe the entire length of stroke. Belt speeds to meet your needs. All controls are within easy reach of operator. The sand belt is completely enclosed at top and both ends for dust control and safety. Belts are easily and quickly changed. Aluminum sanding shoe is mounted on ball bearings for easy operation and control. Massive base and column construction provide solid foundation. The Mattison No .303 Automatic Stroke Sander is recommended as the most efficient method for finish sanding large, flat surfaces such as tops, panels, doors, etc. It provides perfect work on a real production basis. Double-belt model with coarse belt for removing tape and glue, and fine belt for finish sanding, speeds up production by reducing handling time and, in many cases, eliminates drum sander operation.

Send for complete information on the 303, the latest in stroke sanders.

MATTISON MACHINE WORKS

ROCKFORD • ILLINOIS